

Mobile Release 10.5



MTP3200

FEATURE USER GUIDE



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EN

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1 General Information

Topics Covered in this Chapter

- Safety Information
- Copyrights
- Icon Conventions

1.1 Safety Information

Your radio is restricted to occupational use only to satisfy ICNIRP RF energy exposure requirements. Before using the products, read the RF energy awareness information and operating instructions in the Product Safety and RF Exposure booklet to ensure compliance with RF energy exposure limits.

Keep this User Guide and the Product Safety and RF Exposure booklet in a safe place and make it available to other operators in case the accessories are passed on to other people.

1.2 Copyrights

The Motorola products described in this document may include copyrighted Motorola computer programs. Laws in the United States and other countries preserve for Motorola certain exclusive rights for copyrighted computer programs. Accordingly, any copyrighted Motorola computer programs contained in the Motorola products described in this document may not be copied or reproduced in any manner without the express written permission of Motorola.

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European Union (EU) Waste of Electrical and Electronic Equipment (WEEE) directive



The European Union's WEEE directive requires that products sold into EU countries must have the crossed out trashbin label on the product (or the package in some cases).

As defined by the WEEE directive, this cross-out trashbin label means that customers and end-users in EU countries should not dispose of electronic and electrical equipment or accessories in household waste.

Customers or end-users in EU countries should contact their local equipment supplier representative or service centre for information about the waste collection system in their country.

Open Source Software (OSS) Legal Notices

For details on OSS Legal Notices visit Motorola Online (emeaonline.motorola.com) or browse the CPS Plus disc.

1.3 Icon Conventions

The document's "set" is designed to give the reader more visual clues. The following graphic icons are used throughout the documentation set. These icons and their associated meanings are described below.



DANGER

The signal word **DANGER** with the associated safety icon implies information that, if disregarded, will result in death or serious injury.



WARNING

The signal word **WARNING** with the associated safety icon implies information that, if disregarded, could result in death or serious injury, or serious product damage.



CAUTION

The signal word **CAUTION** with the associated safety icon implies information that, if disregarded, may result in minor or moderate injury, or serious product damage.

CAUTION

The signal word **CAUTION** may be used without the safety icon to state potential damage or injury that is not related to the product.



IMPORTANT

IMPORTANT statements contain information that is crucial to the discussion at hand, but is not **CAUTION** or **WARNING**. There is no warning level associated with the **IMPORTANT** statement.

**NOTE**

NOTE contains information more important than the surrounding text, such as exceptions or preconditions. They also refer the reader elsewhere for additional information, remind the reader how to complete an action (when it is not part of the current procedure, for instance), or tell the reader where something is located on the screen. There is no warning level associated with a note.

**SUGGESTION**

SUGGESTION implies a recommendation or tip from Motorola that does not require to be followed, but might be helpful. There is no warning level associated with SUGGESTION.

2 Getting Started

Topics Covered in this Chapter

- Using this Guide
- Product Specific Information
- Before Power On
- Controls and Indicators
- Display
- Status Icons
- Powering On the Radio
- Unlocking Your Radio
- Locking/Unlocking the Keys/Buttons
- Holding Your Radio
- Setting Vertical Flip
- Entering TMO / DMO Mode
- Transmit Inhibit Mode
- Selecting a Talkgroup
- Activating Talkgroup Scanning
- Dialing through Soft Numeric Keypad
- Writing Text
- Broadcast Call
- Ambience Listening (AL) Call
- One-Touch Button Feature
- Terminal Disable/Enable
- Terminal Permanent Disable
- High/Low Audio Toggle
- During the Call

This chapter provide you with a basic information on how to use the radio.

2.1 Using this Guide

This guide describes all available radio features. Your service provider may have customized your radio to optimize its use for your individual needs. Check with you service provider to find out the differences from this guide. Throughout the text in this publication, you notice the following special notations used to highlight certain information or items:

Table 2-1 Special Notations

Example	Description
EMERGENCY button	Capitalize letters indicate that radio user presses the key or a button.
<i>Entering TMO</i> tone	Italic letters indicate the name of the tone.

2.2 Product Specific Information

Table 2-2 Product Specific Information

Description	Value
Max. Voltage	4.2 V
Max. Current	4.7 A
Max. RF Power	1 or 1.8 Watt (Adjustable)
Max. Speaker Load	2 Watts at 16 Ohms
Antenna Impedance	50 Ohms
Operation Temperature Range	-25 °C to +60 °C
Operating Time	Continuous/Intermittent



NOTE

The communication system determines the radio transmit and receive time (operating cycle time). During overload, or beyond the systems specifications at high ambient temperatures, the thermal control cuts down the RF power output, which reduces the radio coverage range.

2.3 Before Power On

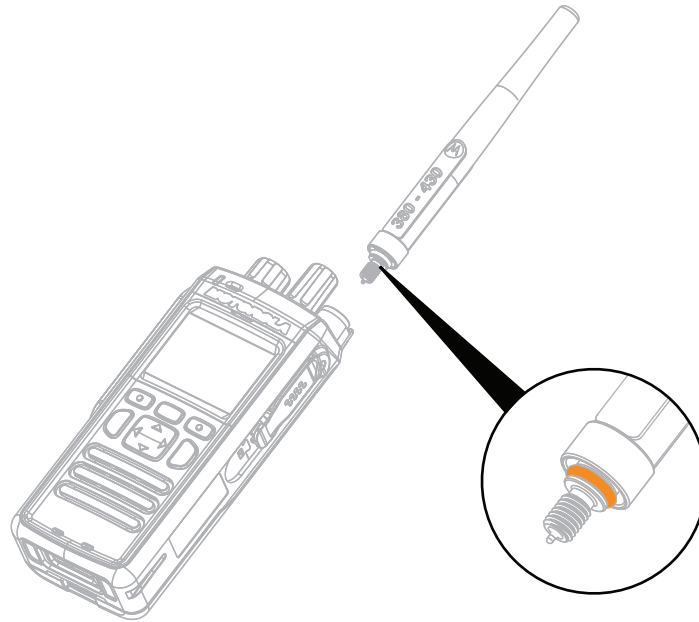
Read this section before you power on your radio for the first time.

2.3.1 Attaching the Antenna

Procedure Steps

- 1 Insert the bottom of the antenna into the screw-in base on the top of the radio.
-

- 2 Turn clockwise until snug. Do not force.

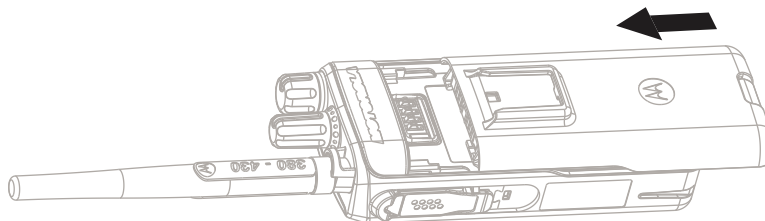
**IMPORTANT**

Use only the antenna intended for the radio. Make sure that the antenna has an operating frequency engraving and a bright orange o-ring at the bottom of the thread. Use of other antennas can result in significant range loss due to poor RF performance.

2.3.2 Installing the Battery

Procedure Steps

- 1 Remove the battery from its protective clear plastic case.
 - 2 Insert the battery top into the compartment as illustrated.
-



- 3 Carefully press the battery bottom downward until it clicks into place
-

2.3.3 Replacing the Battery

Procedure Steps

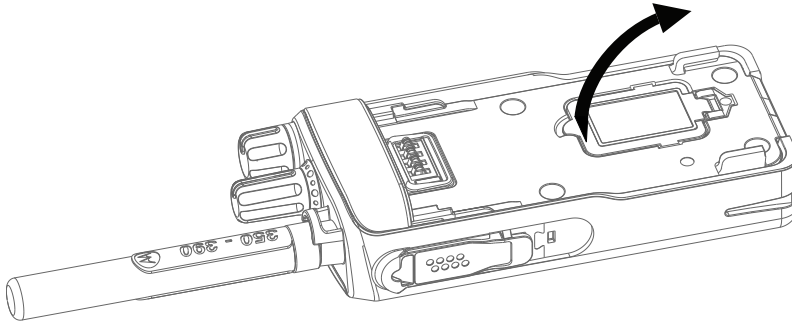
- 1 Lift out the battery.
-
- 2 Replace the battery.
-

2.3.4 Inserting the SIM Card

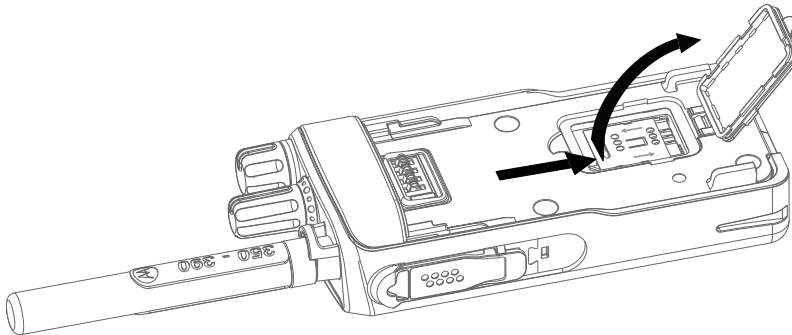
Prerequisites: Turn off your radio before inserting the SIM card.

Procedure Steps

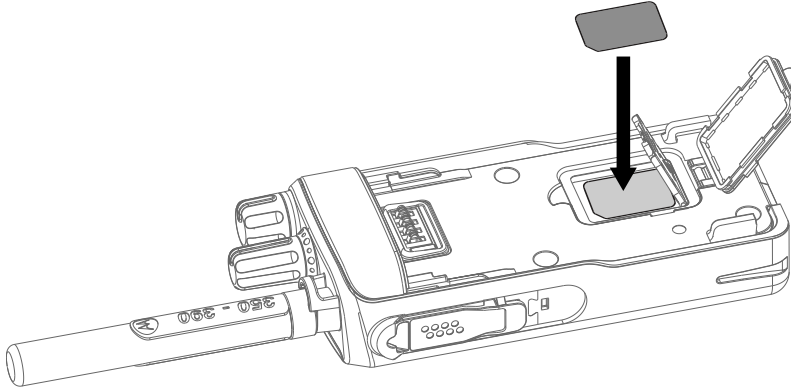
- 1 Remove the battery.
-
- 2 Open a plastic SIM card cover.
-



- 3 Slide a SIM card latch towards the bottom of the radio and lift the latch.
-



- 4 Place the SIM card in a socket with the contact area facing down. Pay attention to the correct position of the notched corner.



-
- 5 Close the SIM card latch and slide it towards the top of the radio.
-
- 6 Close the plastic SIM card cover.
-
- 7 Replace the battery.
-

2.3.5 Charging Your Radio

Prerequisites:

Turn off the radio (recommended).

Correctly attach the battery to the radio. If the radio connected to the charger has no battery attached, it can experience a cyclic on/off.

Procedure Steps

- 1 Insert the connector on the charger into the socket at the base of the radio.



NOTE

- Motorola approved chargers provide optimum performance. Other chargers may not fully charge your Motorola Lithium-Ion battery or may reduce the life of the battery.
 - Battery charging must occur only in non-hazardous areas.
 - After charging, make sure that your battery and your radio temperature are in the operation temperature range.
-

- 2 Select the required plug adapter and connect to the charger.
-

- 3 Plug the charger into a suitable mains socket.
-

2.3.6 Charging Your Radio with USB Cable

Prerequisites: Download a USB driver from: <http://www.motorolasolutions.com/MTP3000> and install it on your computer.

Procedure Steps

- 1 Turn on the radio.
 - 2 Connect the radio to the computer with the USB cable.
-



NOTE

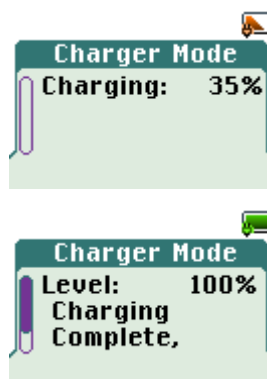
When you connect the USB cable to the radio with fully charged battery without turning the radio on first, a red LED indication occurs at the top of the radio. This can be cleared by turning the radio on.

2.3.7 Charging Indicators

When your radio is turned on while charging, it displays an icon of the battery in charging.

When your radio is turned off while charging, it displays:

- The icon of the battery in charging.
- **Charger Mode** message.
- Charging completion expressed in percent. When the battery is fully charged, **Charging Complete, Unplug Charger** message appears.

**Table 2-3 Battery Icons**

Battery Capacity						
0%-5%	5%-15%	15%-25%	25%-40%	40%-60%	60%-80%	80%-100%

Battery Charge Progress						
0%-5%	5%-15%	15%-25%	25%-40%	40%-60%	60%-80%	80%-100%

Table 2-4 LED Indicators

Indication	Status
Solid green	Battery fully charged
Blinking green	Battery charged at 90%
Solid red	Rapid charge
Blinking red	Faulty or invalid battery
Blinking orange	Battery is waiting to charge

**NOTE**

When you charge your radio in a multi-unit charger and the battery is at the 90–100% charge level, the LED indicators on the radio and on the multi-unit charger differ:

- LED on the radio — blinking green
- LED on the multi-unit charger — solid green

For more accurate representation of the charging level refer to the radio LED signalling.

2.3.8 Charging Modes

You can charge your radio in two ways:

- When your radio is ON.
- When your radio is OFF. This method is more effective, and thus recommended.

2.3.9 Repeated Low Battery Indication

Periodic alerts indicate low battery when the level is lower than 5, 10 or 20 percent of the maximum capacity (if configured by your service provider). Audible alert is given every 30 seconds.

2.4 Controls and Indicators

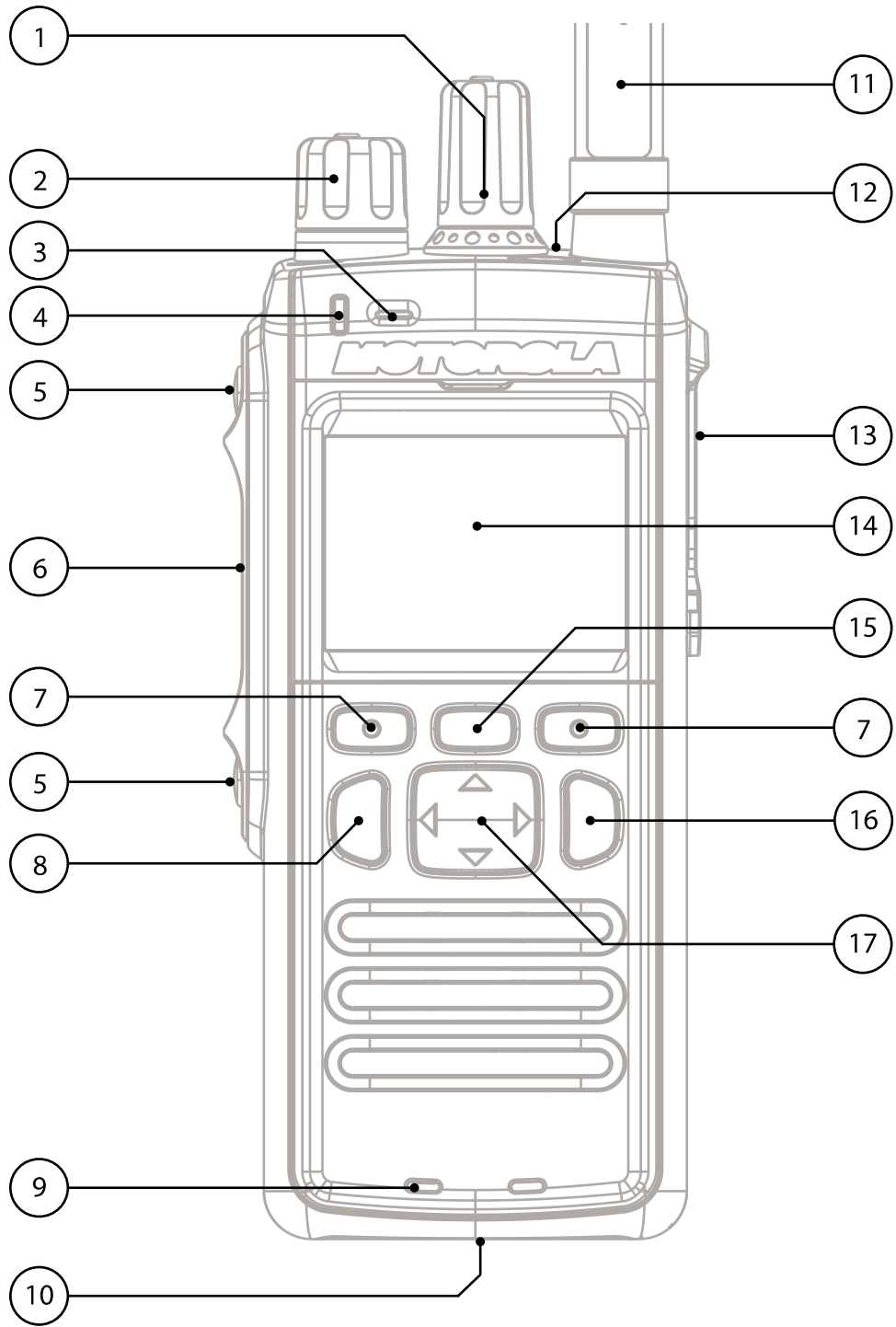


Table 2-5 Controls and Indicators




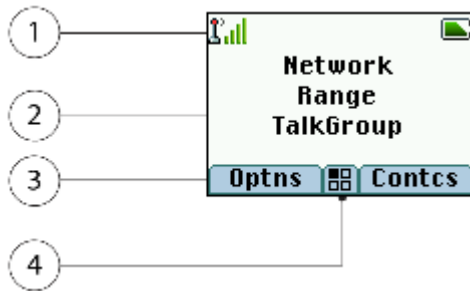
Annotation	Description
1	TALKGROUP KNOB Rotate to select a different talkgroup.
2	VOLUME KNOB Rotate to set the volume.
3	TOP MICROPHONE Activated during Simplex, high audio calls such as Group Calls.
4	LED
5	SIDE button Programmable button, by default, the upper SIDE button is set to Backlight feature and the lower SIDE button is set to Hi/Low Audio feature.
 <div>NOTE</div> <p>The required time to press and hold SIDE button to activate an One-Touch Button feature is set as default to 0,1 second.</p>	
6	PTT (Push-To-Talk) <ul style="list-style-type: none"> • Press and hold to talk in simplex calls or to initiate a group call, release it to listen. • Press to send status and text messages.
7	SOFT key Press left or right SOFT key, to select the option that appears on the screen directly above the them.
8	SEND key Press to initiate or answer duplex calls, or send messages.
9	BOTTOM MICROPHONE
10	CHARGER CONNECTOR
11	ANTENNA
12	EMERGENCY button Press and hold EMERGENCY button to enter Emergency operation. When your radio is off, press and hold to power on in Emergency Mode.
13	ACCESSORY CONNECTOR Provides connection for accessories and cable for data transfer.

Table 2-5 Controls and Indicators (cont'd.)

Annotation	Description
14	<p>DISPLAY</p> <p>Provides alphanumeric text and images within 65,536 colors and 132x90 pixels with scalable fonts and contrast.</p> <div>  <div>NOTE</div> </div> <p>The DISPLAY can be in color and grayscale mode.</p>
15	<p>MENU key</p> <ul style="list-style-type: none"> • From the home screen, press to enter the main menu. • Used to enter the context-sensitive menu.
16	<p>ON/OFF/END/HOME key</p> <ul style="list-style-type: none"> • Press and hold to turn on/off your radio. • Press to end calls. • Press to return to the home screen. <div>  <div>NOTE</div> </div> <p>If a message or notification is displayed on the radio and the Screen Saver activates, pressing ON/OFF/END/HOME only deactivates the Screen Saver.</p>
17	<p>NAVIGATION key</p> <p>Press up, down, left or right NAVIGATION key for list scrolling, while moving around the menu hierarchy, or for alphanumeric text editing.</p> <p>From the home screen, press to activate one of the following:</p> <ul style="list-style-type: none"> • down NAVIGATION key — enters Recent Calls menu item. • up NAVIGATION key — changes My Groups talkgroup folder. • left and right NAVIGATION key — toggles through the talkgroups.

2.5 Display

This section presents the radio's home screen elements.

**Table 2-6 Display**

Annotation	Description
1	Status icon area
2	Text display area
3	SOFT key area
4	MENU /Context sensitive icon

The color of the **SOFT** keys informs you about the mode or state that your radio is in.

Table 2-7 Colors of the SOFT Keys

Color	Mode or State
Light blue	Normal TMO and DMO Mode
Light red	Emergency Mode
Olive	Local Site Trunking Mode

SEE ALSO

[Display](#)

[Setting Time and Date on the Display](#)

2.6 Status Icons

Status icons appear when your radio is engaged in certain activities or when you have activated certain features.

Table 2-8 Status Icons

Icon	Description
Trunked Mode Operation	
	Signal Strength (TMO) — Allows you to check signal strength. More bars indicate a stronger signal.
	No Service
	Migration — Displayed when your radio is registered to the foreign network.

Table 2-8 Status Icons (cont'd.)


























Icon	Description
	Scan — Indicates talkgroup scanning is activated in the radio.
	Priority Scan — Indicates that priority scanning is activated in the radio.
	Data Connected — Displayed when the Packet Data feature is activated and the external device sets up data connection with the radio.
	Data Transmit/Receive — Displayed when the Packet Data feature is activated and the external device sets up data connection with the radio. <ul style="list-style-type: none"> No number — standby data session. Number 1, 2, 3, or 4 — indicates active data session with 25%, 50%, 75%, or 100% bandwidth.
Direct Mode Operation	
	Signal Strength (DMO) — Indicates an incoming Direct Mode Group Call.
	Direct Mode — Displayed when the radio is in Direct Mode.
	DMO Gateway Communication Mode — Indicates that gateway is selected. The icon has the following states: <ul style="list-style-type: none"> Solid — while the radio is synchronized with the gateway. Blinking — while the radio is not synchronized or during attachment. No icon — during a radio to radio and repeater call.
	DMO Repeater Communication Mode — Displayed when the Repeater or GW + Rep option in DMO Mode is selected. This icon has the following states: <ul style="list-style-type: none"> Solid — while the radio has detected the repeater (for example when the radio receives a presence signal). Blinking — while the radio has not detected the repeater or during attachment. No icon — during a radio to radio and gateway call.
General Icons	
	All Tones Off/Duplex and Simplex Ring Muted — Indicates that all alert tones are off in the radio or both simplex ring volume is set to 0 and duplex ring volume is set to 0.
	Simplex Ring Muted — Indicates that simplex ring volume is set to 0 and duplex ring volume is set to more than 0.
	Duplex Ring Muted — Indicates that duplex ring volume is set to 0 and simplex ring volume is set to more than 0.
	Speaker Off (Low Audio) — Indicates that the audio will sound through the earpiece.
	Low Audio — Indicates that the audio mode is changed to low.
	High Audio — Indicates that the audio mode is changed to high.
	Earpiece Connected — Indicates that the earpiece is connected.

Table 2-8 Status Icons (cont'd.)

Icon	Description
	GPS — Indicates that a valid location coordinates are received.
	Battery Strength — Shows the charge of your battery.
	Battery Charging — Indicates that the battery is charging.
	RF Power — Indicates the High RF Power is enabled. Shows the signal strength. More bars indicate a stronger signal.
	Emergency — Appears while the radio is in Emergency Operation.
	New Message Has Arrived — Indicates a new message just arrived.
	New Message(s) in Inbox — Indicates that you have unread messages in your Inbox .
	Keys Locked — Indicates that keys are locked.
	Encryption On — Indicates that SIM card based End-to-End Encryption is enabled.
	Encryption Off — Indicates that SIM card based End-to-End Encryption is disabled.

2.7 Powering On the Radio

Procedure Steps

- 1 Press and hold **ON** button.
- 2 Your radio performs a self-check and registration routine.
- 3 After successful registration, your radio is in service.

2.8 Unlocking Your Radio

Your radio may be locked at power up. To unlock it after powering on, enter the code at the prompt. Your radio enters the default home display.



NOTE

The unlock code is originally set to 0000. Your service provider may change this number before you receive your radio.

SEE ALSO[PIN Protect](#)[Writing Text](#)[Changing PIN Code](#)

2.8.1 Unblocking Your Radio

Prerequisites: You blocked your radio by entering incorrect PIN code for three times (by default).

Procedure Steps

- 1 Radio displays **Unit Blocked Enter PUK**.
- 2 Enter 8-digit PUK (Personal Unblocking Key) number.

**NOTE**

The PUK is an eight-digit master code provided by your service provider.

- 3 Enter the new PIN code twice.
-

2.9 Locking/Unlocking the Keys/Buttons

Press **MENU** key and the left **NAVIGATION** key.

**NOTE**

The **EMERGENCY** button is not locked. Entering Emergency Mode unlocks all keys.

SEE ALSO[Keylock Setup](#)

2.10 Holding Your Radio

The radio has two microphones: a top microphone for simplex dispatcher/private calls and a bottom microphone for duplex telephone-like calls.

**NOTE**

When possible, it is recommended to speak into the top microphone.

When using low audio, hold your radio as you would a telephone. Speak into the bottom microphone. Listen via the earpiece. Keep the antenna at least 2.5 centimeters from your head and body.

When using high audio, hold the radio a vertical position with its top microphone 5 centimeters to 10 centimeters away from your mouth. Speak into the top microphone. Listen through the internal speaker. Keep the antenna at least 2.5 centimeters from your head and body.

Lapel/Shoulder Use

For Group and Private Calls turn your head towards your shoulder/lapel, and speak directly into the top microphone. Listen through the internal speaker.

Speakerphone Use

Place your radio 30 centimeters to 60 centimeters away from you. In a noisy environment, you move the radio closer to you for better transmission.

2.11 Setting Vertical Flip

When and where to use: The feature is useful for a user who has to wear the radio on shoulder, belt, or lapel and at the same time wishes to read the display upside down.

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Display** → **Flip Display**.
 - 3 Select one of the following:
 - **On** — To activate this feature.
 - **Off** — To deactivate this feature.
-

2.12 Entering TMO / DMO Mode

Procedure Steps

- 1 From the home screen, press **Optns**.
 - 2 Select **Trunked Mode** / **Direct Mode**.
-

SEE ALSO

[Networks](#)

[Selecting Network Operation Mode](#)

2.13 Transmit Inhibit Mode

The Transmit Inhibit Mode is a mode in which the radio sends no radio transmissions. It is recommended to activate the mode in RF sensitive areas, for example hospitals, airplanes, where safety can be jeopardized due to transmission radiation.

To activate, select **MENU** → **Networks** → **TXI Mode** → **Activate**.

In this mode, the radio does not transmit under any circumstances except for the Emergency Calls. All the functions and keys which cause transmission, for example registration to the network, changing talkgroup or folder, sending SDS messages, or pressing the **PTT** button are disabled. Any transmission trial causes the radio to display **Not Allowed In TXI Mode** notification and to play a tone.

Your radio can still receive:

- Messages — stored in the **Inbox**
- Calls — stored in the **Missed Calls** list

without the option to respond.

**NOTE**

Received Group Calls are not stored on the radio.

When no danger to safety exists anymore (for example, you leave the RF sensitive area), you can deactivate the Transmit Inhibit Mode and the radio returns to standard operation.

You can deactivate the mode by selecting **MENU** → **Networks** → **TXI Mode** → **Deactivate**, pressing One-Touch button, or implicitly when initiating an Emergency Call.

**NOTE**

RF Transmissions from the radio are prevented under the following conditions:

- TXI Mode is activated
- Battery is removed
- Radio is turned off

2.14 Selecting a Talkgroup

From the home screen, use one of the following methods:

- Press left or right **NAVIGATION** key. Press **Select** to confirm.
- Select **Optns** → **TG by abc**. Enter a talkgroup name and select the talkgroup name from the list.
- Select **Optns** → **TG by Folder**. Select a folder and then a talkgroup name.
- Rotate **TALKGROUP KNOB** until the required talkgroup name is displayed.

**NOTE**

Your radio can have an access up to three levels of the folder structure.

2.15 Activating Talkgroup Scanning

When and where to use: If you want to monitor any TMO Group Call in the defined talkgroup list.

Procedure Steps

1 From the home screen, press **MENU** key.

2 Select **Group Setup** → **Scan** → **Scanning**.

3 Select **Select List** and then a list name.

Step result: Your radio displays list name **Selected**.

4 Select **Scanning** → **On**.

Result: Your radio is scanning on the predefined scan list.

2.16 Dialing through Soft Numeric Keypad

Prerequisites: Direct Private Number Dialing is assigned to a right **NAVIGATION** key.

Procedure Steps

1 From the home screen, press and hold right **NAVIGATION** key.

Step result: Your radio displays dialing number prompt.

2 Press up/down **NAVIGATION** key to choose the number, then press right **NAVIGATION** key to go to the next digit.



NOTE

- You can enter # at the end when the Speed Dialing feature is enabled.
 - The + sign you can enter only when you are editing the first position. Both signs are available after digit 9.
-

3 Press **PTT**.

2.17 Writing Text

Every time that you see text entry screen, refer to this section.

Use the up/down **NAVIGATION** key to enter text, and the right/left **NAVIGATION** key to go to the next/previous character.

To change the text entry mode, long press the left **NAVIGATION** key.

To insert a new character into an existing word, long press the right **NAVIGATION** key.

SEE ALSO




[Unlocking Your Radio](#)

2.17.1 Text Entry Icons

In the text entry screen, icons tell you which text entry mode and method you are using. A character counter displayed on the text entry icon, indicates the amount of characters that can be entered.

Press and hold right **NAVIGATION** key to toggle through the text entry modes.

Table 2-9 Text Entry Screen Icons

Icons	Description
	A-Z – all capitals
	a-z – no capitals
	Enter numbers and symbols: 0-9 # \$ % & ' ^ ~ \ } {] [□ ¥ \$ £ € > < = * × % & + ; _ : /) (- ” ’ @ ! ? , .

2.17.2 Keys Usage

Table 2-10 Keys Usage

Key	Description
Send	Press to send the message. You have a choice to send it to a Private user or a Group.
Delete	<ul style="list-style-type: none"> Press once to delete the highlighted character. Press and hold to clear the entire main text area.
Up NAVIGATION key	Press to scroll through the letters, or numbers or symbols.
Down NAVIGATION key	Press to scroll through the letters, or numbers or symbols.
Right NAVIGATION key	<ul style="list-style-type: none"> Press to navigate to the right. Press to add a new character at the end of text (a, A or 0). Long press to insert a new character into an existing word.
Left NAVIGATION key	<ul style="list-style-type: none"> Press to navigate to the left. Press to add a new character at the beginning of text. Long press to select the text entry mode.
MENU	Opens the Editor Menu to store the message as a template or save changes.

2.18 Broadcast Call

The Broadcast Group Call (also called Site Wide Call) is a high-priority group call from the console operator (or dispatcher) to all users located at one or more sites. The radios are configured to monitor a Broadcast Call, but you cannot talk back. The call can be received as a normal Broadcast Call or an Emergency Broadcast Call. The Broadcast Call preempts an ongoing Group Call that has the same or lower call priority.

2.19 Ambience Listening (AL) Call

This feature allows a console operator (or dispatcher) to establish a special call with a specific radio. It enables to listen to the conversations and background noises within the range of the radio microphone. The call is set up without any indication to the affected radio, and any lower priority ongoing voice call or packet data transfer may be preempted.

After accepting the call, the radio transmits in a simplex call without any action from or indication to the user. The Ambience Listening Call automatically ends when you initiate any voice call, switch to Emergency or TXI Mode, or send Emergency Alarm.

2.20 One-Touch Button Feature

To use One-Touch Button feature press and hold an assigned key to activate one of the following features:

Table 2-11 One-Touch Button Features

Feature	Description
Backlight	Switches backlight settings.
Backlight Intensity Toggle	Regulates backlight intensity.
TMO Talkgroup Scan	Turns on/off the Talkgroup Scan feature in TMO Mode.
DMO / TMO Switch	Switches between TMO and DMO Mode.
Sending Status	Sends a dedicated status message to a dedicated address.
Flip Display	sRotates the display.
Change Talkgroup	Changes the talkgroup to the predefined by your service provider.
Hi/Low Audio	Activates high/low audio.
Sending User Defined Message	Sends a predefined/user defined template to a dedicated address.
Transmit Inhibit (TXI)	Turns on/off TXI Mode.
Private Call	Initiates a private call to a predefined entry in the contact list.
Phone Call	Initiates a phone call to a predefined entry in the contact list.
PABX Call	Initiates a PABX call to a predefined entry in the contact list.
Screen Saver	Turns on/off the Screen Saver feature.
Display Time	Shows time and date on a display.
Covert Mode	Turns on/off the Covert Mode.

Table 2-11 One-Touch Button Features (cont'd.)

Feature	Description
Change Audio Profile	Changes the audio profile.
Previous Talkgroup	Switches the radio to the previously used talkgroup.
Display OPTA	Displays Operative Tactical Address.
SIM Card End-to-End Encryption	Toggles on/off SIM card End-to-End Encryption.
Scroll Audio Profiles	Scrolls through all available audio profiles.
Direct Private Number Dialing	Initiates private number dialing editor.
GPS Status Message	Sends your GPS location in a message to a dedicated address.
Speaker Enable / Disable Per Call	Enables speaker during the call.

**NOTE**

2.21 Terminal Disable/Enable

Your radio is provided with a feature that allows your service provider to disable it temporarily in case it is stolen. When your radio is disabled or is powered up in disabled state, it looks and acts like it is turned off.

If your radio is found, your service provider can enable it again over the air. After your radio is enabled, you may resume normal operation.

2.22 Terminal Permanent Disable

Your radio is provided with a feature that allows your service provider to disable it permanently in case it is stolen or lost. When your radio is disabled permanently, it becomes inoperable. After a Permanent Disable your service provider cannot enable your radio. It is recommended to Permanent Disable your radio only when you do not expect to recover it. If it is recovered then a Permanent Disable radio can be reactivated by returning it to Motorola

2.23 High/Low Audio Toggle

The user is able to switch from the external earpiece to the main speaker using One-Touch button and is not required to disconnect the external earpiece or PHF.

The states of the routed audio are:

- **Speaker HIGH** — indicates that audio is routed to the main speaker.
- **Speaker LOW** — indicates that audio is routed to the earpiece or PHF earpiece, and not to the main speaker.

2.23.1 Using High Audio

When and where to use: Use it when placing and receiving a Group, Phone and Private calls.

Procedure Steps

- 1 Hold your radio in a vertical position with its top microphone 5–10 centimeters away from your mouth.
- 2 Speak into the top microphone and listen through the internal speaker.
Keep the antenna at least 2,5 centimeters from your head and body.

2.23.2 Using Low Audio

When and where to use: Use it when placing and receiving a Phone, PABX, and Duplex Private calls.

Procedure Steps

- 1 Hold your radio as you would a telephone.
- 2 Speak into the bottom microphone and listen through the earpiece.
Keep the antenna at least 2,5 centimeters from your head and body.

2.24 During the Call

During the call, label of the right **SOFT** key indicates the next possible change. Accessory default setup is:

Table 2-12 During the Call

Soft Key Label	Audio Setting
Spkr	Audio goes to the main speaker (Speaker HIGH is displayed)
Erpce	Audio goes to the earpiece (Speaker LOW is displayed)
PHF	Audio goes to the Personal Hands Free (Speaker LOW is displayed)

3 Modes

Topics Covered in this Chapter

- Using Networks
- Trunked Mode Operation
- Local Site Trunking
- Direct Mode Operation
- Transmit Inhibit Mode
- Emergency Mode

This chapter provides you with the information on available modes that the radio can operate.

3.1 Using Networks

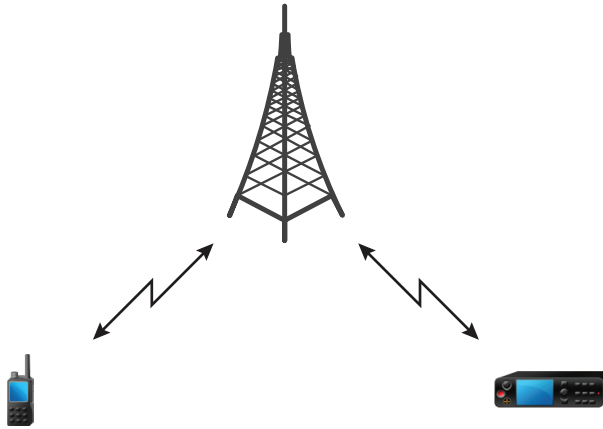
Procedure Steps

-
- 1 From the home screen, press **MENU** key.
 - 2 Select **Networks**.
 - 3 Select one of the following:
 - **Trunked Mode**
 - **Direct Mode**
 - **TXI Mode**
-

Result: Your radio switches to the selected mode.

3.2 Trunked Mode Operation

Trunked Mode Operation requires the switching and management infrastructure. This operation mode enables various voice and data communication types (for example, group calls, short data service messages) and access to the infrastructure-related features (for example, packet data).

Figure 3-1 Trunked Mode Operation

3.2.1 Entering TMO Mode

Procedure Steps

-
- 1 From the home screen, press **Optns**.
 - 2 Select **Trunked Mode**.
-

3.2.2 Selecting a Talkgroup

From the home screen, use one of the following methods:

- Press left or right **NAVIGATION** key. Press **Select** to confirm.
- Select **Optns** → **TG by abc**. Enter a talkgroup name and select the talkgroup name from the list.
- Select **Optns** → **TG by Folder**. Select a folder and then a talkgroup name.
- Rotate **TALKGROUP KNOB** until the required talkgroup name is displayed.



NOTE

Your radio can have an access up to three levels of the folder structure.

3.2.3 Making a Group Call

Procedure Steps

- 1 Press and hold the **PTT** button.
- 2 Wait for the *Talk Permit* tone (if configured) and then speak into the microphone. Release the **PTT** button to listen.



NOTE

The Group Call is received by all members of the selected group who have their units turned on and are in range.

3.2.4 Receiving a Group Call in Idle

Procedure Steps

- 1 The radio receives a Group Call.



NOTE

The incoming Group Call is signalled by a *Receiving Group Call* tone.

- 2 To respond, press and hold the **PTT** button.
-

3.2.5 Receiving a Group Call during an Ongoing Group Call

While in active Group Call, your radio receives a Group Call with a higher priority.

One of the following occurs:

- Your radio is forced to end the current group call and automatically join the incoming one.
- Your radio displays incoming group call screen with options:
 - **Join** — ends current Group Call and starts the incoming one.
 - **End** — cancels the incoming Group Call.

3.2.6 Dynamic Group Number Assignment (DGNA)

DGNA allows your service provider or authorized user to dynamically allocate new, or update existing talkgroups to your radio over the air interface. Using supplementary services messages (SS-DGNA), the network operator can command your radio to add talkgroups, update the existing talkgroups, or delete talkgroups from the list. This operation is performed by transmitting the data to your radio.

3.2.7 DGNA Reception

3.2.8 DGNA Auto Select Group

If the DGNA Auto Select is configured, whenever your radio receives a DGNA, it switches to the added talkgroup.

3.2.9 Viewing DGNA Talkgroups

Prerequisites: Your radio receives the DGNA message.

Procedure Steps

- 1 To view the added talkgroups details press **View**.
 - 2 Scroll through the list to select required talkgroup.
 - 3 To select the DGNA group, press **Attach**.
-

3.2.10 Phone and PABX Calls

The Phone Call allows you to call a landline telephone number or a cellular mobile phone number. The Private Automatic Branch Exchange (PABX) Call allows you to call local (office) extension numbers.

3.2.11 Private Call

The Private Call, also called point-to-point, or individual call, enables calling between two individuals. No other radio can hear the conversation. This call type can be carried out in two ways:

- Duplex call (if the system allows), in TMO Mode. Both parties can speak at the same time.
- Simplex call, in TMO or DMO Mode. Only one party can speak at a time.

When a DMO Private Call takes place, radios not involved in this call receive the channel busy indication. The radios are identified using its radio numbers.

3.3 Local Site Trunking

This mode is also called as Fallback Mode and it allows more than one radio from the same site to communicate when the link between the site and the network central controller fails. Entering and exiting Local Site Trunking (that is, returning to System Wide Services) is done automatically. In this mode some services are unavailable.



NOTE

Your service provider can disable this mode.

3.3.1 Entering Local Site Trunking

When your radio receives a Local Site Trunking indication from the system, the following occurs:

- Your radio plays an Entering Local Site Trunking tone.
- Display shows the **Local Area Service** message.
- Display icons and soft keys turn green.



NOTE

Only noticeable on the color display.

- Any call in progress is dropped upon entering Local Site Trunking Mode.

If configured by your service provider, this message/alert is periodically repeated to remind you that your radio is still operating in Local Site Trunking Mode. The following features are available:

- Registration
- Attachment
- Group Call
- Emergency Call
- Emergency Alarm



NOTE

Your service provider can turn on/off all the visual and audio indications, when you enter Local Site Trunking Mode.

3.3.2 Exiting Local Site Trunking

When the link with the central network controller is reestablished, your radio exits Local Site Trunking, and the following occurs:

- Your radio plays an Exiting Local Site Trunking tone.
- Any call in progress during Local Site Trunking is dropped.
- Display icons and soft keys turn blue.

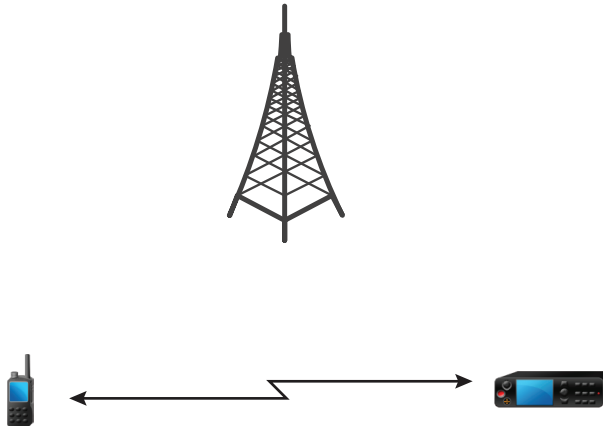


NOTE

Your service provider can turn on/off all the visual and audio indications, when you exit Local Site Trunking Mode.

3.4 Direct Mode Operation

Direct Mode Operation is a mode of simplex operation where radios communicate using radio frequencies which are outside the control of the switching and managing infrastructure.

Figure 3-2 Direct Mode Operation

3.4.1 Entering DMO Mode

To enter the DMO Mode:

- From the home screen, press **MENU** key. Select **Networks** → **Direct Mode**.
- From the home screen, select **Optns** → **Direct Mode**.

3.4.2 Selecting a Talkgroup

From the home screen, use one of the following methods:

- Press left or right **NAVIGATION** key. Press **Select** to confirm.
- Select **Optns** → **TG by abc**. Enter a talkgroup name and select the talkgroup name from the list.
- Select **Optns** → **TG by Folder**. Select a folder and then a talkgroup name.
- Rotate **TALKGROUP KNOB** until the required talkgroup name is displayed.



NOTE

Your radio can have an access up to three levels of the folder structure.

3.4.3 Making a Group Call

Procedure Steps

- 1 Press and hold the **PTT** button.
- 2 Wait for the *Talk Permit* tone (if configured) and then speak into the microphone. Release the **PTT** button to listen.



NOTE

The Group Call is received by all members of the selected group who have their units turned on and are in range.

3.4.4 Receiving a Group Call in Idle

Procedure Steps

- 1 The radio receives a Group Call.



NOTE

The incoming Group Call is signalled by a *Receiving Group Call* tone.

- 2 To respond, press and hold the **PTT** button.
-

3.4.5 Private Call

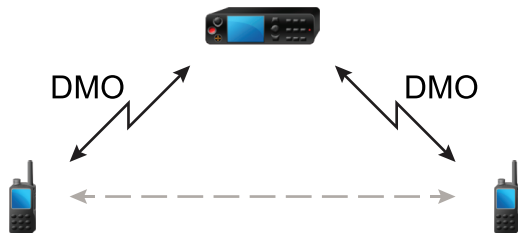
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- Duplex call (if the system allows), in TMO Mode. Both parties can speak at the same time.
- Simplex call, in TMO or DMO Mode. Only one party can speak at a time.

When a DMO Private Call takes place, radios not involved in this call receive the channel busy indication. The radios are identified using its radio numbers.

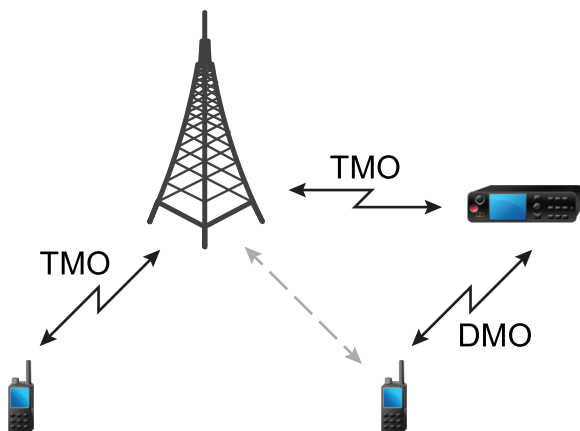
3.4.6 Communication through Repeater

Radios that cannot communicate directly between each other in DMO Mode, can do it through the repeater that is attached on the same talkgroup. This connectivity is used to enhance the radio DMO area.



3.4.7 Communication through Gateway

The Gateway Mode provides connectivity between radios operating in DMO Mode and the TETRA network, so that the DMO radios can communicate with the TMO radios. Your radio can communicate with the trunking system, when the **Gateway** option is enabled.



3.4.8 Selecting DMO Group Call Options

When and where to use: Helps to communicate with other radio users on the same talkgroup through the Gateway or Repeater.

Procedure Steps

- 1 From the home screen, press **Optns**.
- 2 Press **Config**.
- 3 Select one of the following:
 - **MS - MS** — Your radio can communicate only with other radios within its range.
 - **Gateway** — Your radio uses a gateway to communicate with the infrastructure.
 - **Automatic** — Your radio uses the first available gateway for that talkgroup.
 - **Specific** — Your radio uses only the Gateway with the specified Gateway address for that talkgroup. If your radio displays **Selected Gateway: None**, press **Edit** to enter the current gateway address.
 - **Repeater** — Uses the first available repeater for that talkgroup.
 - **GW + Rep** — Uses the first available gateway or repeater for that talkgroup.
 - **Automatic** — Uses the first available gateway for that talkgroup.
 - **Specific** — Uses only the Gateway with the specified Gateway address for that talkgroup. If your radio displays **Selected Gateway: None**, press **Edit** to enter the current Gateway address.



NOTE

When the Gateway and the Repeater cannot be communicated even though a talkgroup to use them is configured, the radio attempts the direct MS-MS communication.

Result: When your radio detects the appropriate Gateway and/or the Repeater, the Gateway and/or Repeater icons turn solid, respectively.

3.5 Transmit Inhibit Mode

The Transmit Inhibit Mode is a mode in which the radio sends no radio transmissions. It is recommended to activate the mode in RF sensitive areas, for example hospitals, airplanes, where safety can be jeopardized due to transmission radiation.

To activate, select **MENU** → **Networks** → **TXI Mode** → **Activate**.

In this mode, the radio does not transmit under any circumstances except for the Emergency Calls. All the functions and keys which cause transmission, for example registration to the network, changing talkgroup or folder, sending SDS messages, or pressing the **PTT** button are disabled. Any transmission attempt causes the radio to display **Not Allowed In TXI Mode** notification and to play a tone.

Your radio can still receive:

- Messages — stored in the **Inbox**
- Calls — stored in the **Missed Calls** list

without the option to respond.

**NOTE**

Received Group Calls are not stored on the radio.

When no danger to safety exists anymore (for example, you leave the RF sensitive area), you can deactivate the Transmit Inhibit Mode and the radio returns to standard operation.

You can deactivate the mode by selecting **MENU** → **Networks** → **TXI Mode** → **Deactivate**, pressing One-Touch button, or implicitly when initiating an Emergency Call.

**NOTE**

RF Transmissions from the radio are prevented under the following conditions:

- TXI Mode is activated
- Battery is removed
- Radio is turned off

3.6 Emergency Mode

The Emergency Mode is a mode of the highest communication priority.

In the Emergency Mode, the radio automatically rejects phone, PABX and private calls, and does not monitor the talkgroups in the selected scan list. However, if an ATG is the selected group, the radio monitors the sub-groups associated with the ATG.

On entering the Emergency Mode, any ongoing voice call is aborted or cleared down. Any packet data transfer in progress is aborted. However, the session is kept open.

The radio remains in the Emergency Mode until you or the originator ends the Emergency Group Call.

Pressing the **EMERGENCY** button or entering Emergency number and pressing **SEND** key, can be used to activate one or more services (depends on the service provider setting):

- Entering Emergency Mode
- Sending Emergency Alarm
- Starting Hot Mic operation
- Starting Emergency Individual Call
- Powering up the radio in Emergency Mode
- Sending the GPS location information

**NOTE**

- Entering Emergency Mode even if TXI Mode is activated, causes immediately your radio to transmit. When entering the Emergency operation, your radio should not be within the RF sensitive area any longer.
- Your radio interrupts the AL call, when you trigger Emergency Mode.

3.6.1 Emergency Operation

Emergency operation is available in TMO and DMO Mode. You can initiate an Emergency Group Call to a pre-programmed group. You can receive an Emergency Group Call:

- From the selected pre-programmed talkgroup.
- From an open group (An open group is a super-group to which all DMO groups belong).

Emergency calls can be placed through the gateway or repeater.

3.6.2 Silent Emergency Mode

The Silent Emergency Mode is a type of emergency services that provides no audible indications and no keypad tones at the entrance. All the display indications are as in the idle mode. However, the radio cannot use any services except for:

- Receiving Ambience Listening
- Sending Silent Emergency Alarms
- Sending GPS location reports



NOTE

If you try to activate any other feature, it is blocked and no indication is displayed.

If the Silent Emergency feature is enabled, the radio enters Silent Emergency Mode on pressing the **EMERGENCY** button. After entering the Silent Emergency Mode, the radio guarantees itself to be in TMO Mode. The radio stays in TMO Mode or switches to it, depending on the actual state. Once in TMO Mode, the radio sends Silent Emergency Alarm.



NOTE

If the radio is in a private or group call, the radio waits until the call ends and then enters the Silent Emergency Mode.

The radio keeps re-sending the alarm until successful sending is confirmed. After the alarm is successfully delivered, the radio stays in Silent Emergency Mode and waits for the Ambience Listening. On pressing the **EMERGENCY** button again, while being in the Silent Emergency Mode, the radio sends the Silent Emergency Alarm (and does not provide any audible or visible indications).

Your radio exits the Silent Emergency Mode, under the following conditions:

- Press **MENU** simultaneously with right **NAVIGATION** key.
- Press both **SOFT** keys simultaneously.
- No success in sending the Silent Emergency Alarm and the maximum number of retries has been reached.
- The control room terminates the Silent Ambience Listening.
- The Ambience Listening is disconnected due to another reason.

If you turn off the radio in the Silent Emergency Mode, the radio switches to pseudo power off state. In this state, the radio appears to be turned off. However, the radio is still on and in the Silent Emergency Mode. On turning the radio on during the pseudo power off state, the radio acts as during turning on and still is in the Silent Emergency Mode.

3.6.3 Emergency Group Call

While in the Emergency Mode, you are able to initiate and receive an Emergency Group Call. This special call is initiated by pressing the **EMERGENCY** button.

If a radio receives an incoming Group Call with emergency priority, the display shows that an Emergency Group Call has been received, and a special audio alert is played. Your radio automatically switches to the Emergency Mode.

The audio for an Emergency Group Call always goes through the speaker (high audio), even if the low audio is selected.

An Emergency Group Call can be configured as:

- Non-tactical — call on a talkgroup predefined by your service provider. The group might be different than the one selected initially. After exiting from non-tactical Emergency Mode the radio is attached to the group that was selected before initiating the non-tactical call. When in non-tactical Emergency Mode, you are not able to switch talkgroups. DGNA messages have no impact during non-tactical Emergency Mode but only after exiting the non-tactical Emergency Mode.
- Tactical — call on the currently selected talkgroup.

In TMO, if the radio enters Emergency Mode while the Emergency Broadcast Call is active, the radio continues on the call without initiating any calls and sends an Emergency Alarm. The behavior depends on your service provider settings.

In DMO, Emergency Group Calls through a gateway are supported.

3.6.4 Emergency Private Call

The Emergency Private Calls are Simplex or Duplex Private Calls with emergency priority. On pressing the **EMERGENCY** button, the radio initiates a Private Call with emergency call priority to the provisioned address. No Emergency Alarm is sent and your radio does not enter the Emergency Mode. This pseudo emergency state (all user indication and rejection of other services) ends as soon as the Emergency Private Call ends.

3.6.5 Emergency MS-ISDN Call

The Emergency MS-ISDN calls are simplex or duplex telephone calls with emergency priority. On pressing the **EMERGENCY** button, your radio initiates an Emergency MS-ISDN call to the predefined MS-ISDN number.

The MS-ISDN call type (simplex or duplex) is predefined by your service provider.

3.6.6 Emergency Alarm

The Emergency Alarm is a special status message sent to the infrastructure on entering the Emergency Mode. The radio may wait for infrastructure acknowledgment for this alarm and attempt retries.

Each time the radio enters the Emergency Mode, it sends an Emergency Alarm. When an Emergency Alarm is sent successfully, your radio plays Emergency Alarm Sent tone. Due to absence of the delivery confirmation in DMO Mode, Alarm Sent information confirms only sending the alarm.

In addition, once the radio is in the Emergency Mode on pressing the **EMERGENCY** button, an additional Emergency Alarm is sent. The message can be dispatched both in TMO and DMO Modes.

**NOTE**

Your service provider can disable the Emergency Alarm feature.

3.6.7 Hot Microphone

The Hot Microphone allows you to talk without pressing the **PTT** button on entering the Emergency Mode. The transmission continues for a provisioned amount of time.

**NOTE**

This feature can be enabled for the Private Emergency Call.

Pressing the **PTT** button before the Hot Microphone time expires ends the transmission. Then normal **PTT** operation takes over (that is, the transition is ongoing for the time the **PTT** button is held). Subsequent **EMERGENCY** button presses during the Emergency Mode initiates the Hot Microphone transmission again.

If a talk permit is granted to another member of the group, the Emergency Call received tone is played. If configured, the radio automatically attempts to get talk permit again.

3.6.8 Alternating Hot Microphone

The Alternating Hot Microphone is an enhancement of the Hot Microphone feature. It allows you to have the Hot Microphone switched on and off alternately.

If this feature is enabled, you can initiate the Alternating Hot Microphone by pressing the **EMERGENCY** button.

The Alternating Hot Microphone terminates when one of the following conditions is met:

- The radio exits the Emergency Mode.
- The Alternating Hot Microphone timer expires.
- The **PTT** button is pressed.
- **End SOFT** key is pressed (only during transmission time slot).

To skip your transmission time slot and jump to a receiving time slot, press **END** key.

**NOTE**

When the radio goes out of the service, it enters the receiving mode and the Alternating Hot Microphone is on hold. When the radio is back to the service, the Hot Microphone transmission and the Alternating Hot Microphone resume.

**NOTE**

When the user is in the Emergency Mode, pressing **EMERGENCY** button restarts the Alternating Hot Microphone.

3.6.9 Entering Emergency Mode

Press and hold the **EMERGENCY** button or enter the Emergency number and press **SEND** key to enter the Emergency Mode.



NOTE

The required time you need to press the **EMERGENCY** button is set to 0.5 second (by default). The time can be configured by your service provider.

Upon entry into Emergency Mode any existing call or service other than packet data service is aborted or cleared down. In the Emergency Mode, the radio automatically rejects private calls. The radio remains in Emergency Mode until you exit it.

3.6.10 Exiting Emergency Mode

Prerequisites: Make sure that your radio is in Emergency Mode.

Procedure Steps

-
- 1 If your radio screen displays **Emgcy Mic On**, press **End**.
-
- 2 Press and hold **Exit**.
-

Result: Your radio exits the Emergency Mode.

3.6.11 Making an Emergency Group Call

Prerequisites: Make sure that your radio is in Emergency Mode.

Procedure Steps

-
- 1 Press and hold the **PTT** button.
-
- 2 Wait for the talk permit tone (if configured) and talk.
-
- 3 Release the **PTT** button to listen.
-

3.6.12 Receiving an Emergency Group Call

A radio receives an Emergency Group Call from the selected pre-programmed group. Audible tone indicates incoming Emergency Group Call.

4 GPS Location Service

Topics Covered in this Chapter

- Enhancing GPS Performance
- Enabling GPS
- GPS Icon
- GPS Different Location Displays
- Viewing Your Position
- Changing GPS Accuracy
- GPS — Things to Keep in Mind

The GPS Location Service feature uses information from Global Positioning System (GPS) satellites orbiting the Earth to determine the approximate geographical location of your radio.

The GPS Location Service availability, accuracy, and the position calculation time vary depending on the environment in which you use the radio. The GPS Location Service can assist your dispatcher or colleagues in many ways such as more efficient deployment of resources or locating your radio when you trigger your emergency service.



IMPORTANT

Where the signals from satellites are not available, the GPS Location Service does not work. This situation usually happens when your radio cannot establish a view of a wide area of open sky, for example, when your GPS antenna is covered or facing the ground. Such situations include being:

- In underground locations
- Inside buildings, trains, or other covered vehicles
- Under any other metal or concrete roof or structure
- Near a powerful radio or television tower
- In extreme temperature outside the operating limits of your radio

Even if your location information can be calculated in such situations, it may take longer to do so. Therefore, in any emergency situation, always report your location to your dispatcher. Even where adequate signals from multiple satellites are available, your GPS Location Service feature provides an approximate location, within 5–50 meters from your actual location.

The radio can be triggered to send Location Reports in various circumstances, for example:

- Upon a request
- Triggered by specific events
- At specified time intervals
- At specified distance intervals

The Location Reports can be sent in two ways using:

- SDS
- Packet Data

If the Location Reports are sent over the Packet Data, an Packet Data icon displays when the message is being sent.

If the Location Reports are sent via SDS as a transport layer, a protocol based on existing standards is used. Therefore, the reports can be sent both in TMO and DMO. SDS User Defined Data Type-4 provisions radios to either use SDS-TL (for added reliability) or no SDS-TL (for saving air interface resources). The TETRA standard Protocol Identifiers for GPS are used - 3 for simple GPS (no SDS-TL) or 131 when SDS-TL is used. The location data are stored in the non-volatile memory of the radio, for later retrieval. If the radio is provisioned to provide user indications, the feature operational status is indicated on the radio display.

Depending on the radio configuration, viewing the radio position and the status of the visible satellites is available. The position may consist of longitude and latitude, UK eastings and northings, or Irish grid coordinates. The GPS Location Service feature can be enabled or disabled as a whole using the CPS. It is possible to configure the feature parameters using the CPS, or over the air. The CPS configuration provides a default profile. The commands received over the air may overwrite the default profile configuration. The profile assigned to the radio determines when to send location data, what data to send with what accuracy and to what address. All data requests and configuration commands received over the air are checked to confirm they have come from a trusted source. Only ISSIs in a specified range may send location commands.

**NOTE**

Ensure that the radio and application receiving location messages from the radio has been configured with the same protocol ID. Otherwise the radio reports a failure when requested to send an Immediate Location Report.

This is a selling feature.

SEE ALSO

[Location](#)

4.1 Enhancing GPS Performance

Sometimes the GPS feature is unable to complete a location calculation successfully. You hear an audible tone indicating that your radio cannot see the satellites.

To maximize the ability of your radio to determine a location fix please note the following guidelines:

- Stay in the open — The GPS feature works best where there is nothing between your radio and a large amount of open sky. If possible, go outside, away from tall buildings and foliage. While the performance in a building is improved by moving closer to windows, glass with certain sun shielding films may block satellite signals.
- Position your radio to enhance reception — Signals from GPS satellites are transmitted to your GPS antenna, which is in your radio antenna. Hold your radio away from your body, giving the antenna clear access to satellite signals. Do not cover the antenna area with your fingers or anything else.
- Stand still — If possible, stand still until your radio is finished determining your location. Moving your radio at a walking pace while your radio is calculating your approximate location may substantially decrease GPS performance.

4.2 Enabling GPS

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Location** → **Interface**.
- 3 Select **On**.



NOTE

Your service provider can enable this feature.

4.3 GPS Icon

When your radio receives a valid GPS location data, it displays a GPS icon.



NOTE

During Emergency Mode, your radio does not display the GPS icon even when receiving GPS location data. If valid GPS location data is available when you leave Emergency Mode the GPS icon is displayed again.

4.4 GPS Different Location Displays

Table 4-1 Different Location Displays

Latitude / Longitude	UK Coordinates	Irish Coordinates
Time	Time	Time
Latitude	2–Letter Code	1–Letter Code
Longitude	Easting and Northing Coordinate	Easting and Northing Coordinate
Altitude	Altitude	Altitude
Satellites	Satellites	Satellites

- Time — indicates when the last time the location was calculated. The time is provided in Universal Time Coordinated.
- Letter Code — grid zone or square on the map for different coordinate standard
- Latitude — expressed in degrees, minutes, and seconds.
- Longitude — expressed in degrees, minutes, and seconds.
- Number of satellites — used to calculate the location. In general, more satellites make for better accuracy. The maximum is 12 satellites.

- Easting — refers to the eastward-measured distance expressed in meters.
- Northing — refers to the northward-measured distance expressed in meters.



NOTE

Skipping each digit of easting and northing coordinates decreases the accuracy by the factor of 10.

4.5 Viewing Your Position

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Location** → **Position**.
- 3 Scroll to view the results about the last time your location was calculated.



NOTE

To refresh your position:

- Select **Position** — the radio refreshes its position automatically
 - Press **Refresh**
-

4.6 Changing GPS Accuracy

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Location** → **Accuracy**.
- 3 Select one of the following:
 - **Medium** (default) — Power consumption optimization is combined with less position accuracy.
 - **High** — Better position accuracy is combined with less power consumption optimization.



NOTE

If connected to an external charging device, the radio automatically enters the **High** mode.

4.7 GPS — Things to Keep in Mind

Where adequate signals from multiple satellites are not available, the GPS feature of your radio does not work. Such situations include but are not limited to:

- In underground locations
- Inside of buildings, trains, or other covered vehicles
- Under any other metal or concrete roof or structure
- Near a powerful radio or television tower

- When your GPS antenna is covered (for example, by your hand or other object) or facing the ground
- In temperature extremes outside the operating limits of your radio

Even where location information can be calculated in such situations, it may take longer to do so. Therefore, in any emergency situation, confirm your location with your dispatcher.

Furthermore, please note that even where adequate signals from multiple satellites are available, your GPS feature provides only an approximate location, often within 20–100 meters from your actual location.

5 Main Menu

Topics Covered in this Chapter

- Scrolling through the Menu
- Menu Icons
- Menu Structure
- Messages
- Contacts
- Security
- Setup
- Group Setup
- My Info
- Recent Calls
- Networks
- Location
- Packet Data
- Crypto Menu

This chapter provides you with the information on the items in the main menu.



NOTE

You can enter the menu items during a call. If you are viewing a menu when a new call starts, the radio exits the menu.

5.1 Scrolling through the Menu

Procedure Steps












- 1 From the home screen, press **MENU** key.
- 2 Scroll to the required item by pressing **NAVIGATION** keys. Press the **SOFT** key assigned as **Select** or right **NAVIGATION** key to select.
If the menu item contains a further set of menu items, repeat step 2.

SEE ALSO

5.2 Menu Icons

The following icons make it easy to identify the menu items at first glance.

Table 5-1 Menu Icons

Menu Icon	Description
	Main Menu Items/Context Sensitive Menu It is assigned to MENU when the main menu items/ context-sensitive menu are active.
	Messages Send status messages, Send text messages (free text or according to user defined or predefined templates), Received messages in Inbox .
	Contacts Add, search, edit, or erase entries in the contact list.
	Security Lets you turn on/off and verify security features, and change passwords.
	Setup Allows you to customize your radio.
	Group setup Contains additional menu items for Scanning Talkgroups features.
	My Info Displays information about your radio and its numbers.
	Recent calls Contains a list of recent calls.
	Networks Allows you to select a network.
	Location Displays location of your radio.
	Packet Data Allows you to send data from your radio to other devices.

5.3 Menu Structure

Table 5-2 Menu Structure

Menu	
Messages	New Message
	Inbox
	Outbox
	Templates
	Predefined
	Send Status

Table 5-2 Menu Structure (cont'd.)

Menu				
Contacts	[New Contact]			
	<Name 1>			
	<Name 2>			
Security	PIN Protect			
	Change Code			
	Keylock Setup	Lock Keypad		
		Auto. Lock		
		Delay		
		Start Locked		
	AirEncrypt			
	K Validity			
	TMSCK Validity			
	DMSCK Validity			
	DMO SCK			
	Covert Mode	On		
		Off		
	Remote Control			
	Setup	Ring Style	Duplex	
Simplex				
Set Volume		Speaker		
		Earpiece		
Language				
Data Setup		Voice Only		
		Data Only		
		Voice & Data		
Audio		Audio Profile		
		Howling Suppr.		
		Audio Toggle	Always Loud	
			Spkr Cntrl	
		Volume Adj. Mode	Individual	
Common				
Tones	Keypad Tone			
	All Tones			

Table 5-2 Menu Structure (cont'd.)

Menu			
	Talk Permit	No Tone	
		Short Tone	
		Normal Tone	
	Clear to send	Tone On	
		Tone Off	
	Periodic Alert	Alert	
		Period	
	D-PTT Tones	D-PTT Mode	
		Tone Style	Single
			Double
Triple			
Display	Flip Display		
	Font Level	1	
		2	
	Screen Saver	Auto	
		Disabled	
	Backlight	Auto	
		Disabled	
		Semi Auto	
		Manual	
	Brightness		
Wallpaper			
LCD Off			
Time & Date	Display	Time & Date	
		Time Only	
		Date Only	
		Off	
	Format	Format Time	
		Format Date	
	Set	Set Time	
		Time Offset	
		Set Date	
	System Update	Off	
Time Only			

Table 5-2 Menu Structure (cont'd.)

Menu			
			Time & Offset
	Energy Economy	EE Status	
		EE Selection	
	RF Power	Hi RF Power	
		Normal RF Pwr	
	Rotary Knob	Rotary Lock	Locked
			Unlocked
			Disable
		In Keypad Lock	Lock None
			Lock Volume
			Lock Scroll
			Lock Both
		Wrap Around	
		Scroll Range	Stay In Range
			Scroll To Next
		Confirm TG Sel.	
		Function Keys	Volume Adjust.
			OTB Feature
Group Setup	Scan	Scanning	On/Off
			Select List
		Active List	
		Scan Lists	
	My Groups	[New Folder]	
My Info	My Private Num		
	My Phone Num		
	Radio Info		
Recent Calls	Dialed		
	Received		
	Missed		

Table 5-2 Menu Structure (cont'd.)

Menu		
Networks	Networks Sel	Home Only
		Select Net
		Trunked Mode
		Direct Mode
		TXI Mode
Location	Position	
		Interface
	Accuracy	Medium
		High
Packet Data	Sent Data	
	Received Data	
	Bandwidth	
	Encryption	
Crypto Menu	Crypto Funct.	Encryption On
		Encryption Off
	Clear CallTone	AlarmTone On
		AlarmTone Off
	Upd Encr Keys	Upd Group Key
	Show OPTA	
	OPTA Filter	
	Crypto Reg	Start Registr
	Audio Settings	Encr Audio On
		Encr Audio Off
	DMO EncrMode	DMO 1
		DMO 2
	SDS Encr Mode	Individual SDS
		Global Key
		Group Key
		Group SDS
		Global Key
		Group Key

5.4 Messages

This feature allows you to send and receive text messages. A message can contain up to 1000 characters, depends on your service provider setting.

5.4.1 New Message

This menu item allows you to create a new message.



NOTE

While editing a text, Status Icons change their appearance and only four of them are displayed: Tower, Signal Strength, Emergency, and Battery.



5.4.1.1 Sending a Message to Private/Phone

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Messages** → **New Message**.
- 3 Enter your message and press **Send**.
- 4 If needed, select **Private/Phone**.
- 5 Type recipient number or press **abc** to choose it from your contacts.
- 6 Press **Send**, or **SEND** key, or the **PTT** button.

5.4.1.2 Sending a Message to Group

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Messages** → **New Message**.
- 3 Type your message and press **Send**.
- 4 If needed, select **Group**.
- 5 Select a group to send the message.

5.4.1.3 Sending a Store and Forward Message

Prerequisites: Your service provider enables the Store and Forward feature.

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Messages** → **New Message**.
- 3 Press **MENU** key and select **Message Setup** → **On/Offline users**.
- 4 Enter your message and press **Send**.
- 5 If asked for the **Target selection**, select one of the following:
 - **Private** — enter the private number or press **abc** to choose the destination number from the contact list.
 - **Phone** — enter the phone number or press **abc** to choose the destination number from the contact list.



NOTE

Your service provider can enable to send a Store and Forward message to a talkgroup.

- 6 Press **Send**, **Select**, **SEND** key, or the **PTT** button.

5.4.2 Inbox

It contains up to 100 new or old incoming messages.

Table 5-3 Inbox Icons

Icon	Description
	Unread (New) Message
	Read (Old) Message
	Sender Information in Message View — name or number
	Time and Date Stamp in Message View — arrival time and date
	Delivery Status Received — delivery status for Store & Forward messages

Messages sub-menu indicates the number of the messages. If the indication is for example 2/4, it means that two unread and four read messages are in the **Inbox**.

5.4.2.1 Entering the Inbox

Procedure Steps

- 1 From the home screen, press **MENU** key.

- 2 Select **Messages** → **Inbox**.

**NOTE**

The status (if any) of the list is displayed for a few seconds:

- **No New or Old Messages** — The screen returns to the previous display within a few seconds.
 - **Inbox Full** — Select **Ok**.
-

5.4.2.2 Receiving New Message

Procedure Steps

- 1 New message received.

Step result: Your radio displays an animation and plays a *New Mail Received* tone.

- 2 Select one of the following:

- **Read** — opens the entire message.
 - **Back** — dismisses the message. You can access the message later from the **Inbox**.
-

5.4.2.3 Using Submenu in Inbox and Outbox

Procedure Steps

- 1 From the home screen, press **MENU** key.
-

- 2 Select **Messages** → **Inbox** or **Outbox**.
-

- 3 Highlight the required message and press **MENU** key.
-

- 4 Select one of the following:

- **Store** — Saves a message as a template. Change the default template name and press **Ok**.
 - **Delete** — Deletes the selected message. Press **Yes** to confirm.
 - **Delete All** — Deletes all the messages in the **Inbox/Outbox**. Press **Yes** to confirm.
 - **Reply** (only for **Inbox**) — Invokes the edit screen with the old message as default text and the message originator as a recipient. After editing, press **Send**, the **PTT** button, or the **SEND** key to send.
 - **Resend** (only for **Outbox**) — Invokes the edit screen with previously entered text with the same recipient. After editing, press **Send**, the **PTT** button, or the **SEND** key to send.
 - **Forward** — Invokes the edit screen with the old message to send it to a different participant. After editing, press **Send**, the **PTT** button, or **SEND** key to send.
 - **Refresh** — Re-orders the message list and displays the new messages.
 - **Delivery Status** (only for **Outbox**) — Shows the date and time of the message when it sent, delivered, read, and expired was not delivered, expired was not read, failed unknown.
-

5.4.2.4 Embedded Number

This feature allows you to call a number from a message or to start a group call with the message sender talkgroup.

5.4.2.5 Storing a Number from a Message

Prerequisites: Embedded Number feature is enabled by your service provider.

When and where to use: You can save the sender's or embedded number from the message to a new or existing contact.

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Messages** → **Inbox**.
- 3 Highlight the required message and select **Read**.
- 4 Press the **PTT** button.
- 5 Radio displays a list of the numbers (including the senders number).
- 6 Highlight the required number and press **Store**.
- 7 Highlight required contact and press **View**.



NOTE

To store a number for a new contact, select **[New Contact]** and fill out the required fields. Press **Done** to save it..

- 8 Select **Edit**.
- 9 Choose the **Type** of the new number and press **Done**.

5.4.2.6 Calling a Number in a Message

Prerequisites: Embedded Number feature is enabled by your service provider.

When and where to use: You can return a voice call to the sender of a message or to any number that is embedded in the message text.

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Messages** → **Inbox**.
- 3 Highlight the required message and select **Read**.
- 4 Press the **PTT** button.
- 5 Radio displays a list of the numbers (including the senders number).
- 6 To call, highlight to the required number and press the **PTT** button or **SEND** button.
- 7 Select **Ctype** to choose the type of call (**Private**, **Phone**, or **PABX**).
- 8 Press the **PTT** button or **SEND** button.

5.4.2.7 Making a Group Call on a Talkgroup of the Message Originator

Prerequisites: Embedded Number feature is enabled by your service provider.

When and where to use: You can start a group call with the message originator talkgroup.

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Messages** → **Inbox**.
- 3 Highlight the required message and press the **PTT** button.

5.4.2.8 Immediate Message

When the new immediate message is received, radio plays the New Mail Received tone and displays the content overlapping your previous screen. All immediate messages are stored in the **Inbox**. If the radio is in PIN Lock state, immediate message is displayed after correct PIN is entered.






NOTE

This feature needs to be enabled by your service provider.

5.4.3 Outbox

It stores all sent messages.

Table 5-4 Outbox Icons

Icon	Description
	Delivery in Progress
	Delivery Accomplished
	Delivery Failed

Messages sub-menu indicates the number of the messages. If the indication is for example 2, it means that two messages are in the **Outbox**.

5.4.4 Templates

This feature is used to store up to 100 predefined and your message templates. Each of the **Inbox** and **Outbox** message can be stored as a template to save time in typing the same text. Each template name and text can be edited afterwards.

5.4.4.1 Sending a User-Defined Template

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Messages** → **Templates**.
 - 3 Highlight the required template name and press **Send**.
 - 4 Do one of the following:
 - Enter the number or press **abc** to select the name from your contact list. Press **Send**.
 - Select required talkgroup from the **TalkGroup List**.
-

5.4.4.2 Setting User-Defined Templates

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Messages** → **Templates**.
 - 3 Highlight the required template and press **MENU**.
 - 4 Select one of the following:
 - **View** — Displays template text.
 - **Delete** — Deletes the template.
 - **Edit Text** — Opens edit screen with the template text. Edit the text and press **MENU**. Select **Save Changes** to save edited template, or **Store** to save the edited template as a new one.
 - **Edit Name** — Opens edit screen with the template name. Press **Ok** to save the template.
-

5.4.5 Predefined Templates

Predefined message templates are programmed into your radio. You are allowed to perform limited edit operations of the predefined template. You can send it, but you are not able to store the edited template or erase it from the predefined template list.

SEE ALSO

[Pseudo Call Forward](#)

5.4.5.1 Viewing Predefined Templates

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Messages** → **Predefined**.
 - 3 Highlight the required template and press **MENU** key.
 - 4 Select **View**.
-

5.4.5.2 Sending Predefined Templates

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Messages** → **Predefined**.
 - 3 Highlight the required template and press **Send**, the **PTT** button, or the **SEND** key.
-



NOTE

You can edit the predefined template before you send it. Press **MENU** and select **Edit**. Edit screen opens with the template text. You are only allowed to replace the existing text.

5.4.6 Send Status

5.4.6.1 Viewing a Status Message Number

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Messages** → **Send Status**.
 - 3 Press **MENU** and select **View**.
-

5.4.6.2 Sending a Status Message to a Group

Prerequisites: Switch to the desired talkgroup, to which you want to send a status message.

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Messages** → **Send Status**.
- 3 Do one of the following:
 - Highlight the required status message and press **Select**, the **PTT** button, or the **SEND** key.
 - Enter 5 digit status message number and press **Send**.



NOTE

If the radio displays **Status list is empty**, you can enter 5 digit status message and press **SendTo**.

5.4.6.3 Targeted Status

This feature allows you to send the status message to a private number or to user selected talkgroup.



NOTE

Your service provider can disable to send a status message to a private number that is not in the **Contacts**.

5.4.6.4 Sending a Targeted Status Message

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Messages** → **Send Status**.
- 3 Do one of the following:
 - Highlight the required status message and press **Select**, the **PTT** button, or the **SEND** key.
 - Enter 5 digit status message number and press **Send**.



NOTE

If the radio displays **Status list is empty**, you can enter 5 digit status message and press **SendTo**.

- 4 Do one of the following:
 - Enter the number or press **abc** to select the name from your contact list. Press **Send**.
 - Select required talkgroup from the **TalkGroup List**.
-

Result: The display shows on of the following delivery reports:








- **Status Sent.**
- **Status Failed.**

5.5 Contacts

This sub-menu stores all your contact numbers. Each entry requires the following information:

- **Name** — if you store more than one number to one contact, this entry is required.
- **Type** — each contact must be assigned to one of the following types:

Table 5-5 Contact Types

Contact Icon	Description
	Private Cannot have a speed dial number.
	Mobile
	Home
	Work
	PABX
	Other
	Pickers Indicate more than one number in a contact.

- **# (number)** — each contacts entry must contain a number.
- **Speed #** — accept the default Speed Dial number or change it.

5.5.1 Creating a Contact

Procedure Steps

- 1 From the home screen, select **Contcs**.
- 2 Select **[New Contact]**.
- 3 Highlight **Name** and press **Change**. Enter the name of your contact and press **Ok**.
- 4 Highlight **Type** and press **Change**. Select the required type of your contact.



NOTE

You can use the Left and Right **NAVIGATION** keys to select the type of your contact from the **Contact Details** screen.

- 5 Highlight **#** (number) and press **Change**. Enter the number of your contact and press **Ok**.
- 6 If needed, highlight **Speed #** and press **Change**. Enter the speed dial number (1– 1000) of your contact and press **Ok**.



NOTE

If the entered number exist, the radio displays **Overwrite?** message. Press **Yes** to confirm, or **No** to enter the speed dial number again.

- 7 Press **Done**.

Result: You have create a contact with one number. To add additional number repeat steps 4–6.

5.5.2 Editing a Contact

Procedure Steps

- 1 From the home screen, press **Contcs**.
 - 2 Highlight the contact you want to edit.
 - 3 Press **MENU**.
 - 4 Press **Edit**.
-

- 5 Highlight one of the following entries and press **Change** to edit:
- **Name**
 - **Type**
 - **# (number)**
 - **Speed #**
-

- 6 Press **Done**.
-

5.5.3 Deleting a Number

Procedure Steps

- 1 From the home screen, press **Contcs**.
-
- 2 Select a contact you want to edit.
-
- 3 Use left or right **NAVIGATION** keys to choose the required number.
-
- 4 Press **MENU**.
-
- 5 Select **Delete number**.



NOTE

If an entry contains only one number, deleting the number deletes the entry.

- 6 Press **Yes**.
-

5.5.4 Deleting a Contact

Procedure Steps

- 1 From the home screen, select **Contcs**.
-
- 2 Highlight a contact you want to delete.
-
- 3 Press **MENU**.
-
- 4 Select **Delete contact**.
-
- 5 Select **Yes**.
-

5.5.5 Checking Capacity

When and where to use: To see how many numbers are stored in the radio.

Procedure Steps

1 From the home screen, select **Contcs**.

2 Press **MENU**.

3 Select **Capacity**.

4 Select one of the following:

- **Private**
 - **Phone / PABX**
 - **Contact**
-

5.5.6 Dialing through the Contact List

Procedure Steps

1 From the home screen, press **Contcs**.

2 To highlight the required contact, use up and down **NAVIGATION** keys or by entering up to 12 characters of the contact name.

3 If the contact has more than one number, use left and right **NAVIGATION** keys to select the required number.

4 Press the **PTT** button to initiate a simplex call with a **Private** number. Otherwise use the **SEND** key to initiate a duplex call.

5.6 Security

This sub-menu stores all your security settings.

5.6.1 PIN Protect

This feature allows you to enable PIN code authentication at the next power on. This code protects your radio against unauthorized use.

If you are unable to unlock the radio, you can only send or receive Emergency Calls and adjust the volume level with the **VOLUME KNOB**.

SEE ALSO[Unlocking Your Radio](#)[Changing PIN Code](#)

5.6.1.1 Protecting the Radio with a PIN Code

Procedure Steps

- 1 From the home screen, press **MENU** → **Security** → **PIN Protect**.
 - 2 Select **On**.
 - 3 Enter 4-digit PIN code.
-

**SUGGESTION**

Default PIN code is 0000.

Post requisites: Each time you turn on the terminal, PIN code is required.

5.6.1.2 Unblocking Your Radio

Prerequisites: You blocked your radio by entering incorrect PIN code for three times (by default).

Procedure Steps

- 1 Radio displays **Unit Blocked Enter PUK**.
- 2 Enter 8-digit PUK (Personal Unblocking Key) number.



NOTE

The PUK is an eight-digit master code provided by your service provider.

- 3 Enter the new PIN code twice.
-

5.6.1.3 Changing PIN Code

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Security** → **Change Code**.
 - 3 Radio prompts for the **Old Code**. Enter currently used 4-digit security code (default setting is 0000).
 - 4 If the entered code matches the old code, radio prompts for the new code twice.
-

Result: Your radio displays **Code Accepted**.

SEE ALSO

[Unlocking Your Radio](#)

[PIN Protect](#)

5.6.2 Keylock Setup

The keypad lock feature allows locking the keypad to prevent accidental pressing of keys. The keypad lock/unlock can be invoked using the menu. By default press **MENU**, and then left **NAVIGATION** key.

By default, while the keypad lock feature is active, all front and side keys (including the **PTT** button) are inoperative except for the **ON/OFF** key and **EMERGENCY** button.

SEE ALSO

[Locking/Unlocking the Keys/Buttons](#)

5.6.2.1 Keypad Lock Notification

When the keypad is locked, your service provider can configure one of the following instructions:

- None — no notification is displayed.
- Notification Only — **Keys Locked** is displayed.
- Notification and Instruction — **Press Menu + Left to lock/unlock keypad** is displayed.

5.6.2.2 Setting Automatic Keylock Delay

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Security** → **Keylock Setup** → **Delay**.
- 3 Use up and down **NAVIGATION** keys to change the minutes and press **Done**.

5.6.2.3 Setting Keylock on Startup

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Security** → **Keylock Setup** → **Start Locked**.
- 3 Select **On/Off**.

5.6.3 Air Encryption

This feature provides service confidentiality between you and the system. This menu item allows you only to view air encryption state. If encryption is on and you receive a clear call (unencrypted), the radio displays **Call & Data Not Encrypted**.

5.6.3.1 Viewing Air Encryption State

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Security** → **AirEncrypt**.
- 3 Your radio displays:
 - a. **Air Encryption Is Off**.
 - b. **Air Encryption Is On**.

5.6.3.2 Air Encryption Key Deletion

Please check with your service provider whether the radio is provided with Air interface encryption keys. You can delete the Air interface encryption keys from the radio by entering the following sequence: ****00##**.



NOTE

- It takes a minute for this feature to delete all the encryption keys from the radio. During this time, do not remove the battery.
- Deletion is performed in idle TMO/DMO or Emergency Operation.



CAUTION

Using this feature will disable the radio, and your service provider will need to reenable the radio.

5.6.4 K Validity

K (Key) is a secret key the infrastructure uses to authenticate the radio in the system. It is part of the authentication that provides service confidentiality between your radio and the system.

5.6.4.1 Verifying K Validity

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Security** → **K Validity**.
 - 3 Your radio displays:
 - **K is Valid** — the infrastructure can authenticate your radio.
 - **K is Invalid** — the infrastructure is unable to authenticate your radio. Please call your service provider to restore the key to your radio.
-

5.6.5 TMSCK Validity

SCK (Static Cipher Key) is a secret key the infrastructure uses to encrypt call and data in TMO Mode. Air interface encryption provides service confidentiality between your radio and the system. Your radio is provided with a set of SCKs.

5.6.5.1 Verifying TMSCK Validity

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Security** → **TMSCK Validity**.
 - 3 Your radio displays:
 - **TMSCK is Valid** — your radio can work encrypted in TMO Mode.
 - **TMSCK is Invalid** — your radio cannot work encrypted in TMO Mode. Please contact your service provider to restore SCKs to your radio.
-

5.6.6 DMSCK Validity

This feature is used to provide the service confidentiality for your calls and data services in the DMO Mode.

5.6.6.1 Verifying DMSCK Validity

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Security** → **DMSCK Validity**.
 - 3 Your radio displays:
 - **DMSCK is Valid** — your radio can work encrypted in DMO Mode.
 - **DMSCK is Invalid** — your radio cannot work encrypted in DMO Mode. Please contact your service provider to restore SCKs to your radio.
-

5.6.7 DMO SCK

Air interface encryption provides service confidentiality between your radio operating in Direct Mode and another radio or a group of radios operating in Direct Mode. This feature allows you to enhance security.



NOTE

This feature needs to be enabled by your service provider.

5.6.7.1 Changing DMO SCK

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Security** → **DMO SCK**.
 - 3 Press **Next**.
 - 4 Radio displays **Change to version** .
 - 5 Select one of the following:
 - **Yes** — to change the key. Your radio displays **Key version changed**.
 - **No** — to leave the key. Your radio displays **Code Not Changed**.
-

5.6.8 Covert Mode

This feature enables you to completely shut down all visible and audible alerts and notifications making the radio unnoticeable even in a silent and dark environment.

When your radio is in the Covert Mode, you cannot enter the following menu items of the **Setup** menu.

- **Set Volume**
- **Tones**
- **Backlight** (in **Display** menu item)

When the Covert Mode is turned on:

- All tones are set to **Off** (corresponding to **All Tones** menu entry).
- Group audio is set to **Speaker Control** (corresponding to **Audio Toggle** menu entry).
- The private speaker is set to **Off** (this setting causes all the calls are routed through the earpiece).
- Backlight is set to **Disabled** (corresponding to **Backlight** menu entry).
- The LED indicator switches off.

The radio powers up in the mode set before turning off. Thus if the Covert Mode was set before turning off, the radio turns on in the Covert Mode .

When the Covert Mode is turned off all the changed settings are reverted to the previous state.

This feature can be used as the One-Touch Button.

5.6.8.1 Activating Covert Mode

Procedure Steps

- 1 From the home screen, press **MENU** key.

- 2 Select **Security** → **Covert Mode**.

- 3 Select one of the following:
 - **On** — all tones are set to off, and the backlight and the LED are disabled immediately. The group audio is routed to the earpiece. The radio displays **Covert Mode On**.
 - **Off** — all settings for tones, backlight and audio are restored. The radio displays **Covert Mode Off**.

5.7 Setup

This sub-menu allows you to change your radio configuration.

5.7.1 Ring Style

This sub-menu allows you to set the incoming call ring style.

5.7.1.1 Setting Ring Style

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Ring Style**.
 - 3 Select one of the following:
 - **Duplex** — To set the new ring style to all duplex calls.
 - **Simplex** — To set the new ring style to all simplex calls.
-

**NOTE**

Upon entry into this sub-menu, the display shows the current ring style used.

- 4 Scroll to the desired style and press **Select**.

**NOTE**

New ring style is played immediately for a few seconds. If necessary, adjust the volume level.

5.7.2 Set Volume

This menu item allows you to adjust the **Speaker** and **Earpiece** tone volumes.

SEE ALSO

[Volume Adjustment Mode](#)

5.7.2.1 Setting Volume

Procedure Steps

- 1 From the home screen, press **MENU** key.

- 2 Select **Setup** → **Set Volume**.

- 3 Select **Speaker** or **Earpiece**.

- 4 Select one of the following:
 - **Voice Vol** — sets the volume level for voice.
 - **Duplex Vol** — sets the volume level for duplex ringtones.
 - **Simplex Vol** — sets the volume level for simplex ringtones.
 - **Keypad Vol** — sets the volume level for keypad tones.
 - **Tones Vol** — sets the volume level for alert tones.
 - **Call-Out Vol** — sets the volume level for Call-Out tones (if enabled).

**NOTE**

If the display shows only one option **Volume**, you can adjust all of the above settings at once. You have the option to change the settings individually when the **Volume Adj. Mode** is set to **Individual**.

- 5 Press right or left **NAVIGATION** key to change the value.
-

SEE ALSO

[Setting Volume Adjustment Mode](#)

5.7.3 Language

This sub-menu allows you to change the language of the radio.

5.7.3.1 Setting Language

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Language**.
 - 3 Select desired language.
-

5.7.4 Data Setup

This menu item allows you to set up your radio to transmit and receive data from the external device.

To connect your radio accessory connector to the external device, use cable PMKN4123. The external device must run an application complying with the TETRA standards.



NOTE

- Data services are available only in TMO Mode.
- Data services are blocked in TXI Mode.
- When set to **Voice Only**, the built in data modem is disabled to conserve battery power.

5.7.4.1 Setting Data Function

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Data Setup**.
 - 3 Select one of the following:
 - **Voice Only** — Your radio receives and transmits voice calls only.
 - **Data Only** — Your radio acts as a modem. It rejects incoming and outgoing voice calls (except for Emergency Calls), status and text messages.
 - **Voice & Data** — Your radio acts as a modem but voice calls have priority over data calls and can interrupt them.
-

5.7.5 Audio

This menu item allows you to adjust your radio audio settings.

5.7.5.1 Audio Profile

When there is a need of different audio quality and adaptive audio parameters, you can modify them accordingly to the working environment. An audio profile adjusts the audio parameters of the radio to fit its current operating environment. There are up to five profiles available.

5.7.5.2 Setting Audio Profile

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Audio** → **Audio Profile**.
 - 3 Select required profile.
-

5.7.5.3 Howling Suppression

Howling Suppression is a mode of the operation that eliminates howling effect.

5.7.5.4 Setting Howling Suppression

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Audio** → **Howling Suppr..**
 - 3 Select required setting.
-



NOTE

On powering on, the Howling Suppression is disabled.

5.7.5.5 Audio Toggle

You can control audio routing (speaker/earpiece) for any private or group call through the menu to have all group calls in high audio.

5.7.5.6 Setting Audio Toggle

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Audio** → **Audio Toggle**.
 - 3 Select one of the following:
 - a. **Always Loud** — The audio sound comes from the speaker (high audio only).
 - b. **Spkr Cntrl** — The audio goes through the earpiece or the speaker.
-

5.7.5.7 Volume Adjustment Mode

You can set the volume to **Individual** or **Common**. When it is set to **Individual**, the volume level for **Voice**, **Duplex**, **Simplex**, **Keypad**, **Tones**, and **Call-Out** can be set per user preferences. When set to **Common**, the audio have one setting for all items.

SEE ALSO

[Set Volume](#)

5.7.5.8 Setting Volume Adjustment Mode

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Audio** → **Volume Adj. Mode**.
 - 3 Select one of the following:
 - **Individual** — You can set **Duplex**, **Simplex**, **Earpiece**, **Speaker** and **Keypad** per your preferences in **MENU** → **Setup** → **Set Volume**.
 - **Common** — You can set one value for all the items in **MENU** → **Setup** → **Set Volume**.
-

SEE ALSO

[Setting Volume](#)

5.7.6 Tones

This menu item allows you to activate/deactivate your radio tones.

**NOTE**

The radio has two sets of tones: New and Classic (default). Your service provider decides which one is enabled.

5.7.6.1 Keypad Tone

You can activate/deactivate keypad tone at every key press.

5.7.6.2 Setting Keypad Tone

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Tones** → **Keypad Tone**.
 - 3 Select one of the following:
 - **On** — Activates keypad tone.
 - **Off** — Deactivate keypad tone.
-

5.7.6.3 All Tones

You can activate/deactivate all tones.

5.7.6.4 Setting All Tones

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Tones** → **All Tones**.
 - 3 Select one of the following:
 - a. **On** — Activates all the tones.
 - b. **Off** — Deactivates all the tones.
-

5.7.6.5 Talk Permit

You can set a different tone upon pressing the **PTT** button.

5.7.6.6 Setting Talk Permit

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Tones** → **Talk Permit**.
 - 3 Select one of the following:
 - **On** — Tone heard upon pressing the **PTT** button.
 - **Off** — No tone heard upon pressing the **PTT** button.
-

5.7.6.7 Clear to Send

You can activate/deactivate tone for the transmitting radio that the receiving radio is ready to accept the transmission.

5.7.6.8 Setting Clear to Send

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Tones** → **Clear to send**.
 - 3 Select one of the following:
 - **Tone On** — Activate clear to send tone.
 - **Tone Off** — Deactivates clear to send tone.
-

5.7.6.9 Periodic Alert

You can activate/deactivate periodic tone indication for the missed calls, the unread messages, and low battery level. For each notification, your radio generates an unread message tone with the amber **LED** color indication.

5.7.6.10 Setting Periodic Alert

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Setup** → **Tones** → **Periodic Alert**.
- 3 Select one of the following:
 - **Alert** — Activates/deactivates periodic tone.
 - **Period** — Indicates the time between each periodic tone.

5.7.6.11 D-PTT Tones

This menu item contains the settings for the Double PTT feature.

The Double PTT feature allows you to send a tone pattern (single, double, or triple) when the radio is in idle or the Group Call mode by pressing the PTT button twice.

After the D-PTT tone is played, the user can press and hold the PTT button once again to get the permission to talk. Otherwise, if the user presses the PTT button while the D-PTT tone is played, it is ignored.

After the D-PTT tone is sent keeping the PTT button pressed, it results in permission to talk. The D-PTT tone is not audible on a sending radio.



NOTE

This feature needs to be enabled by your service provider.

5.7.6.12 Setting D-PTT Tones

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Setup** → **Tones** → **D-PTT Tones**.
- 3 Select one of the following:
 - **D-PTT Mode** — Activates/deactivates D-PTT tone.
 - **Tone Style** — Indicates how many times the D-PTT tone is played.

5.7.7 Display

This menu item allows you to adjust your radio display settings.

SEE ALSO

[Display](#)

[Setting Time and Date on the Display](#)

5.7.7.1 Setting Vertical Flip

When and where to use: The feature is useful for a user who has to wear the radio on shoulder, belt, or lapel and at the same time wishes to read the display upside down.

Procedure Steps

- 1 From the home screen, press **MENU** key.

- 2 Select **Setup** → **Display** → **Flip Display**.

- 3 Select one of the following:
 - **On** — To activate this feature.
 - **Off** — To deactivate this feature.

5.7.7.2 Setting Font Level

When and where to use: This feature enlarge the text on the display so you can see the interface in the environment with the low visibility.

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Display** → **Font Level**.
 - 3 Select one of the following:
 - **1** — Default size of the text.
 - **2** — Larger size of the text. Keep in mind that less text can be displayed.
-

5.7.7.3 Setting Screen Saver

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Display** → **Screen Saver**.
 - 3 Select one of the following:
 - **Activate** — To activate/deactivate this feature.
 - **Text** — To set the text on the screen saver when this feature is activated.
-

5.7.7.4 Setting Backlight

When and where to use: To save the battery power.

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Display** → **Backlight**.
 - 3 Select one of the following:
 - **Auto** — Backlight is triggered by turning on the radio, by pressing any key on device or on the accessory that is connected to it. Also charging or getting signal from the services like: DGNA and TX timeout during priority call are going to turn on the backlight.
 - **Semi Auto** — Backlight is turning on when you are switching on the radio, pressing assigned button to the backlight feature or charging.
 - **Disabled** — Backlight feature is disabled. Your display is always dimmed.
-

5.7.7.5 Setting Brightness

When and where to use: This feature sets the luminance of the screen in the environment with the low visibility.

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Display** → **Brightness**.
 - 3 Select one of the following:
 - **Auto Brightness** — sets to **On** or **Off** of the automatic brightness adjustment.
 - **Brightness** — if the **Auto Brightness** is set to **Off**, choose the luminance value manually.
-

5.7.7.6 Setting Wallpaper

When and where to use: To change the look of the idle screen.

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Display** → **Wallpaper**.
 - 3 Select one of the following:
 - **On** — To activate this feature.
 - **Off** — To deactivate this feature.
-

5.7.7.7 Setting LCD Off

When and where to use: This feature sets the time so the display automatically turns off after a period of time.

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Display** → **LCD Off**.
 - 3 Select one of the following:
 - **Disabled** — your radio display never goes off.
 - **30 seconds, 1 minute, 2 minutes, 5 minutes, 15 minutes, 30 minutes** — turns the radio display after defined time.
-

5.7.8 Time and Date

The Time and Date feature is triggered by the One-Touch Button.

This sub-menu controls the displayed time and date.

**NOTE**

Infrastructure synchronizes the time and date. When not within the infrastructure signal range you can set the values manually.

5.7.8.1 Setting Time and Date on the Display

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Time & Date** → **Display**.
 - 3 Select one of the following:
 - **Time & Date** — Your radio displays time and date.
 - **Time Only** — Your radio displays time only. **Format Date** sub-menu is disabled.
 - **Date Only** — Your radio displays date only. **Format Time** sub-menu is disabled.
 - **Off** — Your radio does not display time nor date. **Format** menu is disabled.
-

SEE ALSO

[Display](#)

[Display](#)

5.7.8.2 Setting Time Format

Prerequisites: If **MENU** → **Setup** → **Time & Date** → **Display** is set to **Time & Date** or **Time Only**.

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Time & Date** → **Format** → **Format Time**.
 - 3 Select one of the following:
 - **12-Hour** — Displays the time with **am** (before noon) or **pm** (after noon) indication.
 - **24-Hour**.
-

5.7.8.3 Setting Time Manually

When and where to use: If the time cannot update automatically through the infrastructure.

Procedure Steps

- 1 From the home screen, press **MENU** key.

- 2 Select **Setup** → **Time & Date** → **Set** → **Set Time**.

- 3 Enter current time using **NAVIGATION** keys.

- 4 Press **Done**.

5.7.8.4 Setting Date Format

Prerequisites: If **MENU** → **Setup** → **Time & Date** → **Display** is set to **Time & Date** or **Date Only**.

Procedure Steps

- 1 From the home screen, press **MENU** key.

- 2 Select **Setup** → **Time & Date** → **Format** → **Format Date**.

- 3 Select (D — day, M — month, Y — year):
 - **DD/MM/YY**
 - **MM/DD/YY**
 - **DD-MON-YY**
 - **YY/MM/DD**

5.7.8.5 Setting Date Manually

When and where to use: If the time cannot update automatically through the infrastructure.

Procedure Steps

- 1 From the home screen, press **MENU** key.

- 2 Select **Setup** → **Time & Date** → **Set** → **Set Date**.

- 3 Enter current time using **NAVIGATION** keys.

- 4 Press **Done**.

5.7.8.6 Setting Time Offset

Procedure Steps

- 1 From the home screen, press **MENU** key.

- 2 Select **Setup** → **Time & Date** → **Set** → **Time Offset**.
-

- 3 Enter time offset using **NAVIGATION** keys.

**NOTE**

You can adjust the offset value, with 15 minute steps, up to 14 hours ahead or behind.

- 4 Press **Done**.
-

5.7.8.7 Setting Automatic Update for the Time and Date

Procedure Steps

- 1 From the home screen, press **MENU** key.
-
- 2 Select **Setup** → **Time & Date** → **System Update**.
-
- 3 Select one of the following:
 - **Off** — All the infrastructure informations are ignored. The radio uses internal time and offset.
 - **Time Only** — Time displayed is calculated from the offset programmed by your service provider added or subtracted from the infrastructure time.
 - **Time & Offset** — Time and offset are updated after receiving from the infrastructure.
-

5.7.9 Energy Economy

Energy Economy (EE) is a mode of operation to save battery life. Your radio does not monitor all downlink time slots of the Main Control Channel. If the radio is in the charger, **Energy Economy** mode is not needed.

5.7.9.1 Enabling Energy Economy

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Energy Economy** → **EE Selection**.
 - 3 Select one of the following:
 - **On** — Activates Energy Economy feature.
 - **Off** — Deactivates Energy Economy feature.
-

5.7.9.2 Viewing Energy Economy Status

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Setup** → **Energy Economy** → **EE Status**.
 - 3 The Energy Economy status is displayed as:
 - **Energy Economy Is Currently Supported By System**
 - **Energy Economy Is Currently Not Supported By System**
-

5.7.10 Transmission Power Class

Transmission Power feature enables your radio to choose whether to transmit with Class 3L or Class 4. The signal strength icon indicates when the radio uses this feature.

5.7.10.1 Selecting RF Power

When and where to use: If you are entering the area that requires higher signal strength.

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Setup** → **RF Power**.
- 3 Select one of the following:
 - **Hi RF Power** — Activates this feature.
 - **Normal RF Pwr** — Deactivates this feature.



NOTE

- Changing RF Power Class to **Normal RF Pwr** during calls may result in dropping the call. The power level may be not sufficient to sustain the transmission.
- Battery consumption is higher when **Hi RF Power** is selected.

5.7.11 Rotary Knob

This menu item allows you to set all the related functionality of the **VOLUME KNOB** and **TALKGROUP KNOB**.

5.7.11.1 Setting Rotary Lock

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Setup** → **Rotary Knob** → **Rotary Lock**.
- 3 Select one of the following:
 - **Locked** — Locks **VOLUME KNOB** and/or **TALKGROUP KNOB**.
 - **Unlocked** — Unlocks the **VOLUME KNOB** and **TALKGROUP KNOB**.
 - **Disabled** — Locking function is unavailable. Your **VOLUME KNOB** and **TALKGROUP KNOB** is unlocked all the time.

5.7.11.2 Setting In Keypad Lock

When and where to use: To set behavior of the rotary knob when the keypad is locked.

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Setup** → **Rotary Knob** → **In Keypad Lock**.

3 Select one of the following:

- **Lock None** — Scrolling and volume setting functionality is available.
 - **Lock Volume** — **VOLUME KNOB** can be only used for scrolling.
 - **Lock Scroll** — **TALKGROUP KNOB** can be only used for setting the volume.
 - **Lock Both** — Scrolling and volume setting functionality is unavailable.
-

5.7.11.3 Setting Rotary Knob Wrap Around

Procedure Steps

1 From the home screen, press **MENU** key.

2 Select **Setup** → **Rotary Knob** → **Wrap Around**.

3 Select one of the following:

- **On** — Scrolling through the talkgroup list stops after reaching first or last talkgroup in the current selected folder.
- **Off** — Scrolling through the talkgroup list is looped or is moved to the next folder.



NOTE

Only when **Wrap Around** is set to **On** and the **Scroll Range** is set to **Scroll To Next**, you are able to scroll through all the talkgroups and folders.

5.7.11.4 Setting Rotary Knob Scroll Range

Procedure Steps

1 From the home screen, press **MENU** key.

2 Select **Setup** → **Rotary Knob** → **Scroll Range**.

3 Select one of the following:

- **Stay In Range** — Scrolling through the talkgroups in the current folder only.
- **Scroll To Next** — Scrolling through all the talkgroups and folders.



NOTE

Only when **Wrap Around** is set to **On** and the **Scroll Range** is set to **Scroll To Next**, you are able to scroll through all the talkgroups and folders.

5.7.11.5 Setting Rotary Knob Talkgroup Selection

Procedure Steps

1 From the home screen, press **MENU** key.

- 2 Select **Setup** → **Rotary Knob** → **Confirm TG Sel.**
-
- 3 Select one of the following:
 - **On** — You need to confirm the talkgroup selection by pressing **Select** or pressing the **PTT** button to immediately start a call on a new talkgroup.
 - **Off** — Attaches to the selected talkgroup without any additional prompt
-

5.7.11.6 Setting Rotary Knob Function Keys

Procedure Steps

- 1 From the home screen, press **MENU** key.
-
- 2 Select **Setup** → **Rotary Knob** → **Function Keys**.
-
- 3 Select one of the following:
 - **Volume Adjust.** — Sets the **SIDE** buttons to adjust volume level.
 - **OTB Feature** — Sets the **SIDE** buttons to the predefined One-Touch Button features.
-

5.8 Group Setup

This sub-menu allows you to set the scanning and my groups folder.

5.8.1 Scan

This menu item allows you to activate/deactivate scanning, view the active scan list, and edit the scan lists. This feature is available only for the TMO Mode. Your radio joins any group call as long as this group is defined in the scan list and scan is turned on.

SEE ALSO

[Activating Talkgroup Scanning](#)

5.8.1.1 Activating Talkgroup Scanning

When and where to use: If you want to monitor any TMO Group Call in the defined talkgroup list.

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Group Setup** → **Scan** → **Scanning**.
 - 3 Select **Select List** and then a list name.
Step result: Your radio displays list name **Selected**.
 - 4 Select **Scanning** → **On**.
-

Result: Your radio is scanning on the predefined scan list.

SEE ALSO

[Scan](#)

5.8.1.2 Setting Talkgroups in the Active Scan List

When and where to use: If you want to edit talkgroups in the active scan list.

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Group Setup** → **Scan** → **Active List**.
-



NOTE

If **Scanning is Off** is displayed, go to **Group Setup** → **Scan** → **Scanning** → **On** to enable scanning.

- 3 Select **View** and highlight the required talkgroup.
 - 4 Press **MENU**.
 - 5 Select one of the following:
 - **Delete** — Erases this group from the active scan list.
 - **Priority** and select new priority to **Low**, **Medium** or **High**.
-

5.8.1.3 Setting Scan Lists

When and where to use: If you want to set up any scan list.

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Group Setup** → **Scan** → **Scan Lists**.
 - 3 Highlight required scan list and press **MENU** to see additional settings:
 - **Rename** — Enter new name for that scan list.
 - **Capacity** — Displays the number of assigned and unassigned talkgroups for the scan list.
 - **Clear** — Deletes all the talkgroup assigned to that scan list.
 - **Add Group** — Adds a talkgroup to the scan list. Select one talkgroup from your talkgroup folders and assign appropriate priority.
 - **Edit** — Changes the priority of the required talkgroup or deletes it.
-

5.8.1.4 Editing Scan Lists

Procedure Steps

- 1 From the home screen, press **MENU** → **Group Setup** → **Scan** → **Scan Lists**
- 2 Highlight a required scan list name.
- 3 Select one of the following:
 - **Rename** — Renames the talkgroup.
 - **Capacity** — Checks the number of the talkgroups.
 - **Clear** — Removes all talkgroups from that list.
 - **Add Group** — Adds new talkgroup.
 - **Edit** — Changes the priority of the talkgroup or delete it.



SUGGESTION

To delete a talkgroup from the scan list, select **Edit** and press **MENU**.

5.8.2 My Groups

This sub-menu allows you to select/edit your favorite group list.

5.8.2.1 Adding Favorite Folder

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Group Setup** → **My Groups**.
-

- 3 Select **[New Folder]**.
 - 4 Enter the name and select **Ok**.
-

5.8.2.2 Adding a Talkgroup to a Favorite Folder

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Group Setup → My Groups**.
 - 3 Select **<FolderName>**.
 - 4 Select **[New Group]**.
 - 5 Select the required talkgroup by Folder or by alphabetic search.
-

5.8.2.3 Editing My Folder List

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Group Setup → My Groups**.
- 3 Highlight required favorite folder.
- 4 Press **MENU**.
- 5 Select one of the following:
 - **Rename Folder** — Edits the name of the folder. Enter new folder name and press **Ok**.
 - **Delete Folder** — Deletes selected folder. Press **Yes**.



NOTE

You cannot delete the last favorite folder.

5.8.2.4 Deleting a Talkgroup from the Favorite Folder

Procedure Steps

- 1 From the home screen, press **MENU** key.
-

- 2 Select **Group Setup** → **My Groups**.
- 3 Select required favorite folder.
- 4 To delete one talkgroup, highlight it and select **Delete**.

**NOTE**

To delete all the talkgroups from the folder, press **MENU** and select **Delete All**.

5.9 My Info

This sub-menu allows you to view your own private, phone, and radio info.

5.9.1 Viewing/Modifying Personal Information

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **My Info**.
- 3 Select one of the following:
 - **My Private Num** — displays your radio private number.
 - **My Phone Num** — displays your radio phone number.

**NOTE**

To modify the displayed phone number, select **Edit**. Type the number and press **Ok**.

- **Radio Info** — displays radio information: manufacturer, product type, ISSI, TEI, Serial Number, and OPTA.

**NOTE**

OPTA information is optional.

5.10 Recent Calls

You can view the history of all calls:

- **Dialed** — calls you initiated.
- **Received** — calls you answered.
- **Missed** — calls you received but not answered or rejected.

Each list of calls may contain up to 50 numbers, the most recent call being at the top of the list. If the number of a recent call is stored in the contact list, the name associated with the number appears in the recent calls list. A number dialed more than once, appears only once in the list.

5.10.1 Viewing Recent Calls

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Recent Calls**.
 - 3 Select one of the following:
 - **Dialed**
 - **Received**
 - **Missed**
 - 4 Select **View** on the required call.
-



SUGGESTION

Press down **NAVIGATION** key to bypass first two steps.



NOTE

Call time information is only available if the time and date are set in the radio. Call duration is not available in the missed calls list.

5.10.2 Calling from Recent Calls

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Recent Calls**.
 - 3 Select one of the following:
 - **Dialed** (from the home screen press **SEND** key to access **Dialed Calls** list)
 - **Received**
 - **Missed**
-



NOTE

From the home screen press down **NAVIGATION** key, to access **Recent Calls** menu item.

- 4 Highlight the required call and press the **PTT** button for private calls or press the **SEND** key to make a phone call.

**NOTE**

Phone calls are only available in TMO Mode.

5.10.3 Storing Recent Calls to Contacts

Procedure Steps

- 1 From the home screen, press **MENU** key.
-

- 2 Select **Recent Calls**.
-

- 3 Select **Dialed**, **Received** or **Missed**.
-

- 4 Press **Store**.

**NOTE**

If **Store** is not assigned to the left **SOFT** key, the number is already stored in your contact list.

- 5 To store the number as a new entry, select **[New Contact]**. Or, to store the number to an existing entry, select the entry, and press **View** then select **Edit**.
-

- 6 With the contact type field highlighted, scroll left or right to display the contact type you want to assign the number.
-

- 7 Select **Done**.
-

5.10.4 Deleting Recent Calls

Procedure Steps

- 1 From the home screen, press **MENU** key.
-

- 2 Select **Recent Calls**.
-

- 3 Select **Dialed**, **Received** or **Missed**.
-

- 4 Press **MENU** on the required call.
-

- 5 Select **Delete**.

**NOTE**

To erase all the calls, select **Delete All**.

5.11 Networks

This menu item allows you to switch between the radio operation modes.

SEE ALSO

[Entering TMO / DMO Mode](#)

[Selecting Network Operation Mode](#)

5.11.1 Selecting Your Network

Procedure Steps

- 1 From the home screen, press **MENU** key.

- 2 Select **Networks** → **Networks Sel** → **Home Only**.

- 3 Your radio registers to the first network on the allowed network list.

5.11.2 Using the Select Net Registration

When and where to use: Use this feature to migrate to another predefined network, when you are out of the range of your network and your radio displays the **No Service** message.

Procedure Steps

- 1 From the home screen, press **MENU** key.

- 2 Select **Networks** → **Networks Sel** → **Select Net**.

- 3 Select the required network from the list.

Result: Your radio registers to the selected network.

5.11.3 Selecting Network Operation Mode

Procedure Steps

- 1 From the home screen, press **MENU** key.

- 2 Select **Networks**.

- 3 Select one of the following:
 - **Trunked Mode** — Switches to the mode using infrastructure.
 - **Direct Mode** — Switches to the mode without using infrastructure.
 - **TXI Mode** — Select **Activate** to stop sending any radio transmission.



NOTE

If the radio is in **TXI Mode**, it is not possible to switch from **Direct Mode** to **Trunked Mode**.

SEE ALSO

[Networks](#)

[Entering TMO / DMO Mode](#)

5.12 Location

See the GPS Location Service for more information.

SEE ALSO[GPS Location Service](#)

5.12.1 Viewing Your Position

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Location** → **Position**.
- 3 Scroll to view the results about the last time your location was calculated.

**NOTE**

To refresh your position:

- Select **Position** — the radio refreshes its position automatically
 - Press **Refresh**
-

5.12.2 Changing GPS Accuracy

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Location** → **Accuracy**.
- 3 Select one of the following:
 - **Medium** (default) — Power consumption optimization is combined with less position accuracy.
 - **High** — Better position accuracy is combined with less power consumption optimization.

**NOTE**

If connected to an external charging device, the radio automatically enters the **High** mode.

5.13 Packet Data

The Packet Data (PD) Service allows you to transfer data in a TETRA system using the Internet Protocol (IP).

**NOTE**

To transfer data from a standard computer over the air, connect the computer via the PMKN4129 data cable with your radio. Your service provider has to setup additional applications on your computer.

If set up by your service provider it is possible to accelerate the transmission by using the Multi-Slot Packet Data (MSPD) Service.

5.13.1 Viewing Data Statistics

Procedure Steps

- 1 From the home screen, press **MENU** key.
-

- 2 Select **Packet Data**.

**NOTE**

Data services are only available in TMO Mode. The data option must be set to **Voice & Data** or **Data Only**.

- 3 Select one of the following:

- **Sent Data** — the number of KBs **Sent** and **Throughput** since current Packet Data activation is displayed.
- **Received Data** — the number of KBs **Sent** and **Throughput** since current Packet Data activation is displayed.
- **Bandwidth** — active data session percentage is shown.
- **Failed Transfer** — the percentage of failed sent/received packets.

**NOTE**

N.A. — standby packet data session.

5.13.2 Viewing Encryption Status

Procedure Steps

- 1 From the home screen, press **MENU** key.
-

- 2 Select **Packet Data** → **Encryption**.
-

- 3 The encryption state of the ingoing packet data session is displayed:

- **Packet Data Channel Clear**
 - **Packet Data Channel Encrypted**
 - **Encryption N/A** (clear)
-

5.14 Crypto Menu

This sub-menu allows you to manage SIM card based End-to-End Encryption.

The End-to-End Encryption is used for:

- Encryption of voice transmission in the DMO and TMO Modes.

- Encryption of messages transmission in the TMO Mode.
- Encryption of messages transmission in the DMO Mode (the radio cannot be in call).
- Encryption of position data (GPS) transmission in the TMO and DMO Modes.
- Transfer of Operational Tactical Address (OPTA) in the TMO and DMO Modes.
- Management of encryption keys in the TMO Mode.

SEE ALSO

[SIM Card End-to-End Encryption](#)

5.14.1 Enabling/Disabling SIM Card End-to-End Encryption

Procedure Steps

- 1 From the home screen, press **MENU** key.

- 2 Select **Crypto Menu** → **Crypto Funct.**

- 3 Select **Encryption On** to enable or **Encryption Off** to disable the End-to-End Encryption.

5.14.2 Setting Alarm Tone

When and where to use: Use this menu item to turn on/off the Alarm Tone notifying about any clear transmission.

Procedure Steps

- 1 From the home screen, press **MENU** key.

- 2 Select **Crypto Menu** → **Clear CallTone**.

- 3 Select **Alarm Tone On** to enable or **Alarm Tone Off** to disable the Alarm Tone.

5.14.3 Updating Encryption Keys

When and where to use: Use this menu item to update old or incorrect encryption keys.

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Crypto Menu** → **Upd Encr Keys**.
- 3 Select **Upd Group Key** to start the update.



NOTE

You can update the encryption keys if the End-to-End Encryption is enabled. The keys cannot be updated when the radio is in a call or in the DMO Mode.

5.14.4 Viewing OPTA

When and where to use: Use this menu item to view Operational Tactical Address (OPTA) providing supplementary information about a subscriber's organization and operational role.

Procedure Steps

- 1 From the home screen, press **MENU** key.
 - 2 Select **Crypto Menu** → **Show OPTA**.
-

5.14.5 Setting OPTA Filter

When and where to use: Use this menu item to define which characters are masked when the OPTA name is displayed.

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Crypto Menu** → **OPTA Filter**.
- 3 Highlight check boxes using the **NAVIGATION** keys and press **Select** to set which characters are masked when the OPTA name is displayed.



- 4 Press **Done** to confirm the changes.

5.14.6 Crypto Registration

Prerequisites: Your radio cannot be in a call or the DMO Mode.

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Crypto Menu** → **Crypto Reg**.
- 3 Select **Start Registr** to start the registration.

5.14.7 Audio Settings

When and where to use: Use this menu item to change the audio output for a Group Call when the call is encrypted but the End-to-End Encryption is disabled.

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Crypto Menu** → **Audio Settings..**
- 3 Select **Encr Audio On** to enable or **Encr Audio Off** to mute the encrypted audio for clear mode.

5.14.8 DMO Encryption

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Crypto Menu** → **DMO EncrMode**.
- 3 Select **DMO 1** or **DMO 2** to enable the required mode.

5.14.9 SDS Encryption Keys

When and where to use: Use this menu item to change the encryption keys for Group and Individual messages (SDS).

Procedure Steps

- 1 From the home screen, press **MENU** key.
- 2 Select **Crypto Menu** → **SDS EncrMode**.
- 3 Select **Individual SDS** or **Group SDS**.
- 4 Select **Global Key** or **Group Key**.

6 Features

Topics Covered in this Chapter

- MS-ISDN
- Dialing through Soft Numeric Keypad
- Phone/PABX Speed Dial
- Phone and PABX Calls
- Private Call
- Short Number Dial
- SIM Card End-to-End Encryption

6.1 MS-ISDN

This feature adds to the radio ISDN number. You can choose between MS-ISDN and ISSI to address the call, send the message or pre-defined templates. It works for both simplex and duplex calls, based on the assigned ISDN number.

6.2 Dialing through Soft Numeric Keypad

Prerequisites: Direct Private Number Dialing is assigned to a right **NAVIGATION** key.

Procedure Steps

- 1 From the home screen, press and hold right **NAVIGATION** key.

Step result: Your radio displays dialing number prompt.

- 2 Press up/down **NAVIGATION** key to choose the number, then press right **NAVIGATION** key to go to the next digit.



NOTE

- You can enter # at the end when the Speed Dialing feature is enabled.
 - The + sign you can enter only when you are editing the first position. Both signs are available after digit 9.
-

- 3 Press **PTT**.
-

6.3 Phone/PABX Speed Dial

This feature allows you to dial Phone/PABX by a shortened number of up to three digits instead of the full number. The Phone/PABX **Speed #** number is assigned when the dialed number is added in the contact list.



NOTE

This feature is available only in TMO Mode.

6.3.1 Using Phone/PABX Speed Dial

Procedure Steps

- 1 From the home screen, enter the predefined Phone/PABX speed dial number and **#** key.
 - 2 Press **SEND** key.
-

6.4 Phone and PABX Calls

The Phone Call allows you to call a landline telephone number or a cellular mobile phone number. The Private Automatic Branch Exchange (PABX) Call allows you to call local (office) extension numbers.

6.4.1 Making a Phone or PABX Call

Prerequisites: Direct Private Number Dialing is assigned to a right **NAVIGATION** key.

Procedure Steps

-
- 1 From the home screen, press and hold right **NAVIGATION** key and enter the number.
 - 2 If **Phone** or **PABX** are not the first type of call presented, press **Ctype** repeatedly to select it.
 - 3 Press **SEND** key.
-

6.5 Private Call

The Private Call, also called point-to-point, or individual call, enables calling between two individuals. No other radio can hear the conversation. This call type can be carried out in two ways:

- Duplex call (if the system allows), in TMO Mode. Both parties can speak at the same time.
- Simplex call, in TMO or DMO Mode. Only one party can speak at a time.

When a DMO Private Call takes place, radios not involved in this call receive the channel busy indication. The radios are identified using its radio numbers.

6.5.1 Making a Private Call

Prerequisites: Direct Private Number Dialing is assigned to a right **NAVIGATION** key.

Procedure Steps

- 1 From the home screen, press and hold right **NAVIGATION** key and enter the number.
- 2 If **Private** is not the first type of call presented, press **Ctype** repeatedly to select it.
- 3 When you are in the following mode:
 - a. TMO — For a simplex call, press and release the **PTT** button. You hear a ringing tone. Otherwise, press and hold the **PTT** button. Wait for the talk permit tone before talking, and release the **PTT** button to listen. For a duplex call, press and release **SEND** key. You hear a ringing tone.
 - b. DMO — Only simplex call is available. Press and hold the **PTT** button. Wait for the talk permit tone before talking, and release the **PTT** button to listen.
- 4 To end the call, press the **END** key.

6.6 Short Number Dial

This feature allows you to dial part of the full number of the person you wish to call. Your radio automatically completes the number.

Example: Your radio number is 4282564.

1. Dial 456 (instead of 4282456, the full number).
2. To place the call, press the **PTT** button or the **SEND** key.

6.7 SIM Card End-to-End Encryption

The table below presents interactions occurring between radios with and without the SIM card feature. The SIM card provides End-to-End Encryption.

Table 6-1 Radios Interactions

Transmission Type	Transmitting Radio	Receiving Radio	Result
Private Call	SIM card	No SIM card	Call is muted (encrypted calls cannot be received)
Private Call	No SIM card	SIM card	Warning: clear call message appears and the call is received
Group Call	SIM card	No SIM card	Call is muted (encrypted calls cannot be received)
Group Call	No SIM card	SIM card	Warning: clear call message appears and the call is received

Table 6-1 Radios Interactions (cont'd.)

Message	SIM card	No SIM card	Delivery failed notification appears and the message is not received
Message	No SIM card	SIM card	Message is received

**NOTE**

To send a message or call a non-SIM card radio, turn off the SIM card End-to-End Encryption.

SEE ALSO

[Crypto Menu](#)

Appendix A: Tones



NOTE

To listen to the audio signal tones samples, refer to the PDF file with the embedded sound files.

Table A-1 Radio Tones



















































New Tone	Classic Tone	Tone Description
		Default Beep — Played when pressing a key.
		Duplex Volume Set — Played when adjusting duplex volume.
		Invalid Action
		Examples:
		<ul style="list-style-type: none"> Pressing an invalid key. Dialing an invalid number. Talk prohibit.
		System Notification
		Examples:
		<ul style="list-style-type: none"> The radio changed its status from out-of-range to in service. The radio returned to the home network. Toggling between the TMO and DMO modes.
		System Error
		Examples:
		<ul style="list-style-type: none"> The radio changed its status from in service to out-of-range. Call disconnected.
		General Notification
		Examples:
		<ul style="list-style-type: none"> Entering Local Site Trunking. Entering the Transmit Inhibit Mode.
		Positive Notification — Message sending succeeded.
		Negative Notification — Message sending failed.
		Item Received — A new message received.

Table A-1 Radio Tones (cont'd.)

New Tone	Classic Tone	Tone Description
		Talk Permit — The radio user is allowed to transmit their message (after pressing the PTT button).
		Clear-to-send — Data transmission ready to begin.
		Emergency — The Emergency Call received.
		Low Battery — The battery charge level is low.
		Over the Air 1 — Single D-PTT tone.
		Over the Air 2— Double D-PTT tone.
		Over the Air 3— Triple D-PTT tone.
		Phone Busy — The called radio is busy.
		Phone Ring Back — Played on the initiating phone when the Phone Call is being setup.
		Private Ring Back — Played on the initiating phone when the Private Call is being setup.
		Ringtone 1.
		Ringtone 2.
		Ringtone 3.
		Ringtone 4.
		Ringtone 5.
		Simplex Volume Set — Played when adjusting simplex volume.

Appendix B: LED Indications

Table B-1 LED Indications

Indication	Status
Solid green	In use
	Battery fully charged
Blinking green	In service
	Battery charged at 90%
Solid red	Out of service
	Rapid charge
	Trickle charge
Blinking red	Connecting to the network
	Entering DMO
	Faulty or invalid battery
Solid orange	Transmit inhibit in service
	Channel busy in DMO
Blinking orange	Incoming call
	Battery is waiting to charge
No indication	Idle
	Radio powered down

Appendix C: Troubleshooting

Your radio displays the following messages:

Table C-1 Displayed Messages

Message	Message Description
...-Received	Call received but not answered, or rejected.
Attachment Failed	Your radio could not perform talkgroup attachment. It keeps on trying. If it does not succeed, try another talkgroup.
Authenticate Failure	Your radio could not register on an authenticated system (for example, the Authentication Key is incorrect, or authentication is disabled).
Call Cancelled	You have canceled the call.
Call Ended	<ul style="list-style-type: none">Faulty channel. Please try later.You have ended the call.
Call Preempted	Channel being used for priority.
Emgcy In Use Wait For Mic	The Hot Microphone feature is active, but the channel transmit grant has been given to another Emergency call on the same talkgroup. Your radio microphone is not active during this time, but it automatically tries to regain talk permit after a predetermined time.
Emgcy Mic Ended	The Hot Microphone timer automatically expired, or you pressed the PTT button to cancel the Hot Microphone feature.
Emgcy Mic On	The Hot Microphone feature is active, and your radio is automatically transmitting hands free emergency audio.
Empty Entry	The speed number you dialed does not exist, or the number exists but the group is non-selectable.
Faulty Unit Error	Self-test failed. An operational fault has been detected with your radio. Record the error number. Turn your radio off and contact service.
This group already exists	The group you are attempting to add exists in the My Groups folder.
Insufficient visible data	Your radio is in the process of determining your location. This process may take several minutes to complete.
Insufficient visible satellites	Your radio is in the process of determining your location. This process may take several minutes to complete.
Invalid ID	The entered number is not valid.
Limited Service	Emergency Calls, Emergency Alarms, and mobility operations (for example group attachment) are allowed. All other incoming and outgoing call and data services are blocked.
List Empty	There are no programmed entries in the scrolling list. Type the entry.
List Not Attached	All talkgroups in the scan list are not attached.
List Partially Attached	The scan list is active, but not all talkgroups are attached to it.

Table C-1 Displayed Messages (cont'd.)

Message	Message Description
Message Delivered	Indicates mail successfully delivered.
Message Failed	Indicates mail delivery failure.
No Service	Your radio is outside coverage. Return to coverage.
My Groups Is Empty	You cannot view/delete groups when the My Groups folder is empty.
My Groups Is Full	You are not allowed to add a group to the My Groups folder as it already contains the maximum allowed number of groups.
Network Trouble	Network problems. Please try again later.
No Answer	The called party does not answer.
No Entries	This message is displayed when accessing an empty list.
No Group	<ul style="list-style-type: none"> • Attachment failed. Your radio detached from current talkgroup. Please wait until it attaches again to the current talkgroup. • Displayed when you are out of the normal coverage area of your selected talkgroup. Please select a new talkgroup that is valid for your working location. • Indicates a favorite group was removed from the My Groups folder.
No List	The network list is empty.
No New or Old Messages	Indicates there are no new or old messages in the Inbox .
No Selected Scan List	You selected an empty network list.
No Service	Your radio is out of coverage.
Not Allowed To Initiate Call	You are not allowed to dial a number which is not in the address book.
Not Allowed To Transmit	Release the PTT button and try again later. You are not allowed to send a text message or a status message to a number which is not in the address book.
Single TalkGroup Only	There is only one programmed entry in the scrolling list.
Overheating, Please Turn Radio Off	Your radio turns off. Keep it turned off for 5 minutes.
Party Busy	Called radio is busy.
Party Not Available	Called radio is out-of-range or turned off. Please try again later.
Please Try Again	You could not call.
Please Wait Connecting	A message during startup.
Registration Failure	Your radio could not register within the system. Please try again later.
Service Denied	Invalid number. Call your service provider.
Service Not Available	This service is not available on the current network.

Table C-1 Displayed Messages (cont'd.)

Message	Message Description
Service Restricted	This service is by your service provider, it has not been purchased, or it is not available.
TalkGrp ... cannot be deleted	Your service provider set this group so you cannot delete it from the favorite talkgroup folder.
Try Again Later	The requested service is temporarily unavailable.
Radio Disabled	Check with your service provider.
Unit is OK Warn:	Self-test error. A minor fault has been detected. Your radio is still fully operative. If this error recur, note the error code and contact service.
Unit Not Attached	You radio could not attach to the system. The talkgroup may not be defined in the system. Please try another group.

Appendix D: Maintenance

Topics Covered in this Appendix

- Storage
- Extending Battery Life
- Battery Charging Temperature
- Battery Charging Rules
- Additional Battery Warnings/Cautions
- Looking after Your Radio



SUGGESTION

- Before using your radio for the first time, charge the battery until the LED green light appears.
- Battery charging must occur only in non-hazardous areas.
- Clean the connector frequently and before the programming procedure for example, with a soft brush (do not use fluids).

D.1 Storage

Do not store your battery where the temperatures exceed or fall below -20°C . New Lithium-Ion batteries may be stored in ventilated, cool and dry areas with some capacity loss in the life cycle. It is not recommended to store the batteries when they are fully charged or discharged.

D.2 Extending Battery Life

A battery is an expendable part and may need replacing during the life of the radio. To ensure maximum service life of your radio, always replace the battery with a genuine Motorola replacement. In order to ensure maximum life for your battery:

- Do not charge it unless necessary (low battery indication).
- Charge it until full charge indication is on.
- Turn off the radio before charging.

D.3 Battery Charging Temperature

Your charger only charges your battery when it is at temperature range of 1°C to 37°C . As the temperature gets colder (close to 0°C) less capacity is stored in the battery.

If, during charging, the temperature is out of range, the battery might not be fully charged since the charging is temporarily stopped until the temperature becomes suitable. The temperature range of battery operation is from 0°C to $+45^{\circ}\text{C}$ in charger mode and from -10°C to in discharge mode.

D.4 Battery Charging Rules

Generally, to reduce the number of charge cycles as much as you can, wait for the to charge, as it ensures maximum battery life. Do not use your charger as a radio holder or leave your radio and fully charged battery connected to the charger while not charging. Continuous charging shortens the battery life.

D.5 Additional Battery Warnings/Cautions

- Battery storage above 60° C and below -20° C is not recommended.
- To prevent injury, do not allow metal objects to touch the battery contacts.
- Do not disassemble.
- Do not throw in fire.
- Do not dispose of battery in household waste.



NOTE

When the battery is deeply discharged (for example, after left unattended for months while connected to the radio), it cannot be recovered in all types of chargers. It is best recovered:

- In the rear pocket of a Dual Unit Charger.
- In a battery only pocket on a Multi-Unit Charger.
- By charging the radio with the USB cable.

D.6 Looking after Your Radio

Never leave your radio or battery in extreme temperatures (over 60° C) — for example, behind windscreen in hot, direct sunlight. Do not immerse your radio in water. To clean the body of the radio, use a moistened or antistatic cloth. Do not use electrostatically charged cloth.